

A Review on Cloud Security Challenges and its Future Directions

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Abstract

Increasing population pushes forward the demands to meet their requirements. Every individual is familiar with internet and make use of it to store and retrieve their data and information. With the help of cloud computing people can access various applications through internet. Many applications which a part of every person's daily routine includes instagram, whatsapp, facebook, snapchat, online shopping, business, online lectures etc. Cloud computing provides access to on-demand access to a shared pool of configurable computing resources. With the enormous benefits of cloud still it suffers from various limitations or challenges, among which security is the main concerning issue in cloud computing. There are various existing studies that have tried to overcome the issue but still some drawbacks exist that are needed to resolve. This paper deals with the survey of various security issues in cloud computing and also provides the future directions to overcome the challenges.

Keywords- Cloud computing, Internet, Technique.

1. Introduction

Cloud computing is a new computing model; the large computing was run in the various computing resource on network. Based on user requirements, it can dynamically allocate, deploy, redeploy and cancel the cloud services. Its goal is to make the "computing power" as the water and electricity to supply for user, so that to make it easier for users to use the cloud services. In cloud computing, all of resource on internet is formed a cloud resource pool, then these resource is dynamically allocated to different applications and services. Virtualization technology allows multiple operation systems and applications can be run on a shared computer. And when a server is heavily loaded, it can migrate an instance of operating systems and its applications from the heavy load server to a light-load one in the cloud resource pool. In the model of cloud computing, the local computing and storage resources are moved into the cloud. So those from a business point of view do not need to buy expensive servers, and to employ professionals who deploy and maintain the IT infrastructure. Only need to pay a low rental cost to the cloud service provider, thereby reducing the enterprise's purchase cost and operation cost. Especially for small-scale enterprises, it is undoubtedly beneficial. Cloud computing refers to both the application delivered as services over the internet and the hardware and the system software in the data centers that provide those services. Cloud computing enables both, a single user hosting documents in the cloud and also making the entire IT infrastructure available for users globally. Considering this 'shareable' nature of cloud computing. People can easily save their time and money by making use of cloud computing. Cloud provides a huge amount of applications in various areas that includes business, online entertainment, telecommunication, finance and banking, educational sector and healthcare. Telecommunication companies use cloud computing to provide both private and public

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cloud networks to customers and organizations for domestic and commercial purposes. Fig. 1.1 shows various benefits of cloud computing as follows-

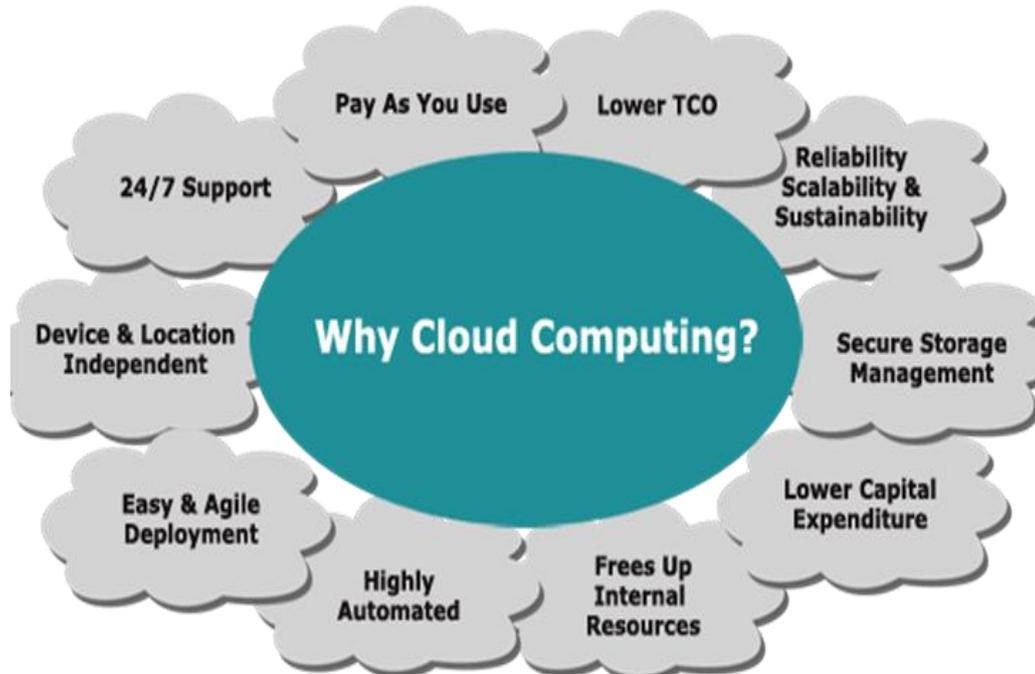


Fig. 1.1 Benefits of Cloud Computing

According to the American National Institute of Standards & Technology is an under: "Cloud Computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (example: networks, servers, storage applications and services) that can be rapidly provisional and released with minimal management effort or services provider interaction."

Cloud computing offers a variety of services that includes-

- Infrastructure as a Service (IaaS): It provides cloud computing infrastructure for a customer that refers to on-demand providing of infrastructural resources.
- Platform as a Service (PaaS): It provides both IaaS and platform components that include operating system and software development frameworks.
- Software as a Service (SaaS): Provides on-demand application on the cloud computing platform.

As there are many advantages and utilization of cloud applications and services but still there exist some challenges that are needed to study deeply. This paper proposes a survey on various such techniques that are used to overcome the issues of security but still needs further improvement. The rest of the paper is organized as follows: The Section 1 demonstrates the Introduction to cloud computing, Section 2 provides the survey on existing study related to cloud computing security, Section 3 depicts the details of various techniques that can be used to overcome the security issues and Section 4 provides the conclusion.

2. Related Work on Cloud Computing Security

The existing studies surveyed provide the overview related to cloud computing which is discussed in the section as under. Security algorithms cover symmetric and asymmetric algorithms. Symmetric algorithms involve DES, Blowfish, RC5, 3DES and AES whereas

asymmetric algorithm includes RSA, DSA, Diffie-Hellman and El Gamal. The author discussed some problems related to existing security algorithms and there is need to implement a better version of DES, 3DES, AES, RSA, IDES, Blowfish. [1]

A novel biometric inspired homomorphic encryption algorithm (BIHEA) is proposed for secured data/files transmission over hybrid cloud environment. The proposed algorithm encrypts the user data at run-time by providing the authorized user biometric-feature-based one time password. Every time a user is authenticated by a totally different one time password. The BIHEA provides a good solution to commonly identified theft seen in cloud environment like phishing, shoulder surfing. The further work on replay attack can also be considered and prevented using Time Stamp in BIHEA. It is also foreseen to perform real test with distributed computing on existing cloud servers like Amazon, Salesforce.com, Hadoop along with MATLAB tool. [2]

A new scheme called FREDP (File Remotely keyed Encryption and Data Protection) is proposed. This scheme involves three-party interaction among a mobile terminal, private clouds and public clouds. The private clouds share the ciphertext file to the public clouds until the mobile terminal and the trusted third party, the private clouds; finish the encryption of the plaintext file using a remotely keyed encryption algorithm. To ensure security when a mobile terminal uses data, the private clouds as the third party regularly verify the integrity of the data in the public clouds. Finally, the mobile terminal and private clouds decrypt the ciphertext file to allow the user of the mobile terminal to use the data. In addition, we analyze the security of FREDP using BAN. The FREDP satisfies the security standard. But there is need to integrate the ABE method into the FREDP to expand the range of the decryption party. In this way, not only the file's owner but also other authorized users can decrypt the file. Therefore, the advantage of the cloud can be further utilized. [3]

To overcome the limitation of cloud computing security encryption and decryption techniques are used which consists of authentication based AES and MD5 algorithms to secure data and login of user over cloud. But still there is need to use secure operating system so that attacks are easily not depict in cloud computing. [5] T-broker, a trust-aware service brokering system for efficient matching multiple cloud services to satisfy various user requests is proposed. Experimental results show that T-broker yields very good results in many typical cases, and the proposed mechanism is robust to deal with various number of service resources. In the future, the work can be extended to continue research from two aspects. First is how to accurately calculate the trust value of resources with only few monitored evidences reports and how to motivate more users to submit their feedback to the trust measurement engine. Implementing and evaluating the proposed mechanism in a large-scale multiple cloud system, such as distributed data sharing and remote computing, is another important direction for future research.[6]

A new data protection mechanism for cloud storage is proposed, which holds the following properties. 1) The cryptographic key is protected by the two factors. Only if one of the two factors works, the secrecy of the cryptographic key is held. 2) The cryptographic key can be revoked efficiently by integrating the proxy re-encryption and key separation techniques. 3) The data is protected in a fine-grained way by adopting the attribute based encryption technique. [7] The proposed field-programmable gate array (FPGA) algorithm implementation of cryptographic systems for symmetric systems can be implemented using Xilinx. The proposed algorithm is quite easier to design having less complexity and deals

with swapping numbers. Time taken for encrypting and decrypting the message is less and the process is very efficient because simple methods are employed. Use of symmetric key insures verification and privacy. Algorithm absolutely satisfies the necessities of a high-quality encryption algorithm for providing secure communication. This proposed algorithm converts the 8-bit original data into 16-bit encrypted – hamming coded data and 16-bit encrypted – hamming coded data into 8-bit original data. This same method can be used for more number of input data bits.[8]

A framework on secure storage and authenticate user access in cloud is proposed. The proposed scheme provides two-factor protection mechanism to enhance the confidentiality of outsourced data. If a user wants to recover the outsourced data, this user is required to hold sufficient attribute secret keys with respect to the access policy and authorization key with regard to the outsourced data. In addition, the proposed scheme provides the user-level revocation for data owner in attribute-based data access control systems.[9] To secure the confidentiality of sensitive data during deduplication, the convergent encryption technique is used to encrypt the data before outsourcing. For better data protection, this paper talks about the issue of data deduplication authorization. There are several new deduplication implementations providing authorized deduplication verification in a hybrid cloud approach. [10]

The paper presents a comparative survey on various encryption and decryption algorithms. By comparing different parameters used in algorithm, AES is found to be faster compared to others in terms of execution time. DES algorithm consumes least encryption time but its execution time is longer. RSA consumes longest encryption time and memory size. It is not scalable. Secret sharing protocol provides high security for the data. It is used in military device initialization. Blowfish has least memory requirement. Blowfish is suitable for applications like communication link encryption where the key remains constant for a long time.[11] A new and efficient approach based on private key cryptography to secure information is proposed during communications. The main objective of the approach is to minimize the number of keys which is a crucial issue for encryption and decryption. The number of keys is difficult to maintain and increases the complexity of the algorithms. All previous approaches are used to select to encrypt and decrypt the text data. We implemented proposed approach and symmetric approach and compare using different parameters like data base size, execution time and the memory required for encryption and decryption. From the analysis it is clear that the proposed approach performs well as compared to the symmetric approach. [12]

A brief overview and comparison of Cryptographic algorithms is presented, with an emphasis on Symmetric algorithms which should be used for Cloud based applications and services that require data and link encryption. A review is performed on Symmetric and Asymmetric algorithms with emphasis on Symmetric Algorithms for security consideration on which one should be used for Cloud based applications and services that require data and link encryption. The authors analyzed Symmetric algorithms for different encryption and encoding techniques, found AES to be a good candidate for key encryption and MD5 being faster when encoding.[13]

The symmetric cryptographic algorithm is presented and named as AES (Advanced Encryption Standard). It is based on several substitutions, permutation and transformation. The paper concludes that AES encryption is the fastest method that has the flexibility and scalability and it is easily implemented. On the other hand, the required memory for AES

algorithm is less than the Blowfish algorithm. AES algorithm has a very high security level because the 128, 192 or 256-bit key are used in this algorithm. It shows resistance against a variety of attacks such as square attack, key attack, key recovery attack and differential attack. Therefore, AES algorithm is a highly secure encryption method. Data can also protect against future attacks such as smash attacks. AES encryption algorithm has minimal storage space and high performance without any weaknesses and limitations while other symmetric algorithms have some weaknesses and differences in performance and storage space.[14]

The issues of data deduplication are discussed in brief. There are several new deduplication implementations providing authorized deduplication verification in a hybrid cloud approach. As an issue verification of idea, the developed model of the proposed authorized duplicate copy check method and tested the model. That showed the authorized duplicate copy check method experience minimum overhead comparing convergent encryption and data transfer. [15] Strategies are presented followed include categorization of the data on the basis of their sensitivity and importance, followed by the various cryptography techniques such as the AES (a Symmetric Cryptography technique), SHA-1 (a Hashing technique), and ECC (Elliptic curve Cryptography (an Asymmetric Cryptography technique)). Till date, most of the authors were using a single key for both encryption and decryption which is a weak target of various identified malicious attacks. Hence, in the designed hybrid algorithm, two separate keys are used for each encryption and decryption. The cloud user who wants to access cloud data, need to first register with CSP and cloud owner. After registration, user login id, password and OTP (One Time Password) sent to the user registered mobile number, are required to access the encrypted cloud data. There is need for an algorithm can be tested against the various security attacks practically, the concept can be checked for efficiency and work can be extended to minimize the required time for all processing, even the concept can be combined with biometric traits those can be used for generating keys for encryption and decryption processes to gain an edge in the field of cloud storage. [16]

A novel cloud-based authentication protocol suite is proposed that not only is aware of the internal DoS threats but is also capable of defending against external DoS attackers. The proposed solution uses a multilevel adaptive technique to dictate the efforts of the protocol participants. This technique is capable of identifying a legitimate user's requests and placing them at the front of the authentication process queue. The authentication process was designed in such a way that the cloud based servers become footprint-free and completely aware of the risks of any DoS attack. [17] A new security mechanism is introduced that will enforce cloud computing services against breaches and intrusions. Due to the relevance of cloud systems in gathering sensitive information in aerospace platforms, the techniques will also need to prevent common attacks through weak password recovery, retrieval, authentication and hardening systems; otherwise hackers will be able to compromise even the protected systems. In the case of security breaches, it would be advantageous to include the capabilities of the MIST algorithm (Alkadi). There is need to expended to be more applicable to existing cloud computing technologies in the aerospace industry. [18]

Various data security methods are analyzed. The paper depicts that encryption algorithms play an important role in data security on cloud and by comparison of different parameters used in algorithms, it has been found that AES algorithm uses least time to execute cloud

data. Blowfish algorithm has least memory requirement. DES algorithm consumes least encryption time. RSA consumes longest memory size and encryption time. The future scope of the work is to find out an efficient algorithm to make the data secure by combining homomorphic encryption and MD5 algorithm and use some compression algorithm to protect the data. [19] The paper presents a way to store data with confidentiality, integrity and authentication properties. Data is double encrypted before uploading to server storage, so data confidentiality will be achieved. [20]

The paper describe about cloud deployment models, service delivery models of cloud computing, characteristic of cloud, cloud computing adopting risks, technology, cloud computing security problem and data encryption using RSA, DES and AES. [21] The paper discussed the various encryption algorithms (symmetric, asymmetric) and issues involved in using cloud services such as the performance of encryption algorithms on a cloud environment for different input block data size, how the change in the size of the files after encryption is complete. The analysis is performed on importance of security to cloud. We compared seven algorithms, five algorithms for symmetric algorithm and two for asymmetric algorithm for data security in cloud. Moreover, we concluded that the algorithms implemented are more efficient on cloud environment. The work can be extended by evaluating more algorithms and their results can be analyzed with one another to produce the best implemented security algorithm in cloud environment for future use. [23]

Two efficient encryption algorithms are introduced that meet security demand in cloud. Probabilistic encryption, one of these algorithms may be used to produce randomness of text encryption. With this algorithm, if the same message is encrypted twice it should yield different secret coded texts on both calculations. Another crucial algorithm is homomorphic encryption, is a cryptographic method to define the sample system and to provide a software implementation. In order to maintain quality of service (QoS) and improve customer satisfaction, an efficient algorithm is proposed which combines the characteristics of both probabilistic and homomorphic encryption techniques, to provide high level of security. [22] A review on secure cloud storage is demonstrated in which cryptographic techniques have been used to their designs. A brief review on cloud storage, and subsequently review the existing secure cloud storage based on cryptographic techniques. Moreover, analyzation is performed and indicates what type of cryptographic techniques is mainly adopted in existing cloud storages and what role the cryptographic techniques play. The further work can be done on more cryptographic techniques that can be applied to cloud computing and more secure cloud storage systems can be proposed. [24]

Symmetric and asymmetric key cryptography is reviewed with concentration on the symmetric key cryptography with consideration on the best algorithm to use for cloud application and services that require data security. Most of the organization is shifting their data over the cloud, which means that they are using the storage service provided by cloud service providers. Therefore, there is a need to secure the data uploaded over the cloud storage. To ensure about the security of the data over the cloud storage, cryptography term to secure the data. For that purpose, two algorithms are embedding from different cryptography ways to encrypt and decrypt our data. The paper uses most of the security algorithms, which are compatible with each other AES and RSA algorithms. In the proposed system multilevel cryptography is designed, in which firstly data is encrypted

using the AES algorithms and then encrypting the output from the first level using RSA algorithms then uploading it over the cloud storage.[25] There are various other approaches that can be followed for more better results.

3. Cloud Computing Security Techniques

As discussed in Section 2 there are various existing techniques, methods and algorithms that are used for good cloud security but still there many limitations that are needed to achieve better outcomes. Security techniques are classified into two approaches i.e., Symmetric approach and Asymmetric approach which is discussed in detail as follows-

Asymmetric Algorithms

For performing change of plain content into cipher content, Asymmetric Algorithms are widely used which are comprised from a couple of related keys, one key that is used for encryption, called the Public key and an alternate yet bury related key for decryption called the Private key. For the purpose, wide range of asymmetric algorithms available such as ECC, Diffie-Hellman and RSA.

- RSA Algorithm is most appropriate for information making a trip to/from Web and Cloud based conditions. In working with Cloud Computing, the end client information is first scrambled and after that put away on the Cloud. At the point when the information is required, the end client basically needs to put a demand to the Cloud Service supplier for getting to the information. For this the Cloud specialist organization initially verifies the client to be the valid proprietor and afterward conveys the information to the requester utilizing RSA Asymmetric Algorithm. This calculation has bolstered from .NET Security Framework too. Here two keys included – first the Public Key which is known to all and the other Private Key which is known just to the end client. Information change from plain content to figure content is finished utilizing Public Key by the Cloud specialist organization and the figure content to plain content decoding is finished by the end client utilizing Private Key as the Cloud benefit buyer. Once the client information is scrambled with the Public Key; that figure information must be unscrambled with the relating Private Key as it were. In this Algorithm, prime numbers are utilized to produce public and private keys in view of numerical recipes and by increasing the numbers together. This uses the square size information in which plain content or the figure writings are whole numbers in the vicinity of 0 and 1 for some n esteems. Here is the handled plaintext is additionally scrambled in pieces and the paired estimation of each square should be not as much as the number (n). RSA being multiplicative homomorphic which basically implies that to discover the result of the plain content, increase the figure messages with the goal that the result of the outcome is the figure content of the item.
- Diffie-Hellman Key Exchange (D-H): A technique for trading cryptographic keys by first built up a mutual mystery key to use for the inter-communication and not for encryption or decryption. This key trade process guarantees the two gatherings that have no earlier information of each other to mutually build up a common mystery key over unsecure web. Changes of keys are traded and both wind up with a similar session key that resembles a mystery key. At that point each would then be able to ascertain a third session key that can't without much of a stretch be determined by an aggressor who knows both trade esteems. This key encodes the resulting interchanges utilizing a symmetric key figure however is helpless against the Man-in-the Middle (MITM)

assault. This key trade isn't utilized for trading genuine huge information not at all like RSA.2.

Symmetric Algorithms

Symmetric Algorithms include a solitary shared mystery key to encode and also unscramble information and are fit for preparing expansive measure of information and from registering angle are not extremely control escalated, so has bring down overhead on the frameworks and have rapid for performing encryption and decoding. Symmetric calculations encode plaintexts as Stream figures a tiny bit at a time at any given moment or as Block figures on settled number of 64-bit units. There are however few problems with Symmetric Algorithms:

- Trade Shared Secret Key over unsecure web -Symmetric-key algorithms share secret keys required by the sender and receiver during encryption or decryption process. In case a third person gains access to the secure secret key, cipher text messages can easily be decrypted. The fact of having one single secret key algorithm is the most critical issue faced by Cloud service providers when dealing with end users who communicate over unsecure internet. The only option is to have that secret key be changed often or kept as secure as possible during the distribution phase.
- Problem confirming if the content is altered or actually sent by the claimed sender- If a hacker has the secret key, decrypting the cipher text, modifying the information being sent with that key and send to the receiver. Since a single key is involved during the crypto process, either side of the transactions can get compromised. Such data integrity and non-repudiation issues however need to involve the use of Digital signatures or Hashing functions like MD5.
- Tools for cracking Symmetric encryption- By use of Brute force [12] by running hacking tools that have the ability crack the combinations and keys to determine the plaintext message and perform Cryptanalysis where the attacks are focused on the characteristics of the algorithm to deduce a specific plaintext or the secret key. Then hackers are able to figure out the plaintext for messages that would use this compromised setup.

4. Conclusion

With the increasing demand of cloud services efficient utilization of energy and computing resources has become a matter of great concern. Effective use of cloud for every application focuses it towards better security scenario. Existing literature provides many security techniques which are discussed in detail in the paper but still there exist many challenges that are needed to overcome. Symmetric and asymmetric cryptographic techniques are mostly used for security of cloud computing. There is a need for hybrid technique or a new technique can be introduced for better security results. The paper presents various research directions that can be followed.

References

1. Kaur, R. and Kingar, S., 2014. Analysis of security algorithms in cloud computing. *International Journal of Application or Innovation in Engineering and Management*, 3(3), pp.171-6.
2. Bala, Y. and Malik, A., 2018. Biometric Inspired Homomorphic Encryption Algorithm for Secured Cloud Computing. In *Nature Inspired Computing* (pp. 13-21). Springer, Singapore.

3. Yang, L., Han, Z., Huang, Z. and Ma, J., 2018. A remotely keyed file encryption scheme under mobile cloud computing. *Journal of Network and Computer Applications*.
4. Hoepfner, J.A., 2015. A Comparison of Cloud Computing Database Security Algorithms.
5. Ojha, S. and Rajput, V., 2017, February. AES and MD5 based secure authentication in cloud computing. In *I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC), 2017 International Conference on* (pp. 856-860). IEEE.
6. Kanagasabapathy, J. and Paul, C.S., 2016. Secure and Trusted Information Brokering In Cloud Computing. *International Journal of Scientific Research in Science and Technology*, 2(2), pp. 210-217.
7. Zuo, C., Shao, J., Liu, J.K., Wei, G. and Ling, Y., 2018. Fine-Grained Two-Factor Protection Mechanism for Data Sharing in Cloud Storage. *IEEE Transactions on Information Forensics and Security*, 13(1), pp.186-196.
8. Noorbasha, F., Manasa, M., Gouthami, R.T., Sruthi, S., Priya, D.H., Prashanth, N. and Rahman, M.Z.U., 2017. FPGA Implementation Of Cryptographic Systems For Symmetric Encryption. *Journal of Theoretical and Applied Information Technology*, 95(9), pp.2038-2045.
9. Saraswathi, M. and Bhuvaneshwari, T., 2017. A Secured Storage using AES Algorithm and Role Based Access in Cloud. *International Journal of Scientific Research in Science, Engineering and Technology*, 3(5), pp. 511-515.
10. Rao, K.S., 2016. A Survey on Authorized Deduplication Techniques in Cloud Computing. *International Journal of Engineering Science*, 6(3), pp. 2102-2105.
11. MU, N. and Sivakumar, T., 2017. A Comparative Survey of Algorithm used in Cloud Computing. *International Journal of Computer Science and Engineering*, 5(3), pp.1587-1592.
12. Satankar, N. and Verma, V.K., 2017. A SELFGENERATED PRIVATE KEY BASED CRYPTOGRAPHICALGORITHMS. *International Journal of Recent Innovation in Engineering and Research*, 2(03).
13. Bhardwaj, A., Subrahmanyam, G.V.B., Avasthi, V. and Sastry, H., 2016. Security algorithms for cloud computing. *Procedia Computer Science*, 85, pp.535-542.
14. Pancholi, V.R. and Patel, B.P., 2016. Enhancement of cloud computing security with secure data storage using AES. *International Journal for Innovative Research in Science and Technology*, 2(9), pp.18-21.
15. Rao, K.S., 2016. A Survey on Authorized Deduplication Techniques in Cloud Computing. *International Journal of Engineering Science*, 6(3), pp. 2102-2105
16. Goyal, V. and Kant, C., 2018. An Effective Hybrid Encryption Algorithm for Ensuring Cloud Data Security. In *Big Data Analytics* (pp. 195-210). Springer, Singapore.
17. Darwish, M., Ouda, A. and Capretz, L.F., 2015. A cloud-based secure authentication (CSA) protocol suite for defense against Denial of Service (DoS) attacks. *Journal of Information Security and Applications*, 20, pp.90-98.
18. Devkota, D., Ghimire, P., Burris, J. and Alkadi, I., 2015, March. Comparison of security algorithms in cloud computing. In *Aerospace Conference, 2015 IEEE* (pp. 1-7). IEEE.
19. Unnikrishnan, M. and Arun, L., 2014. Comparative Study of Cloud Computing Data Security Methods. *International Journal of Computer Applications*, pp. 13-18.

20. Ulhe D. Miss.Snehalata., Security in Cloud Computing using Encryption. In Satellite Conference ICSTSD 2016 International Conference on Science and Technology for Sustainable Development, ISSN: 2348 – 8387, pp. 159-162.
21. Scholar, P.G., 2017. A Survey On Security Using Encryption Techniques In Cloud. International Journal of Engineering Development and Research, 5(2), pp. 326-331.
22. Jayapandian, N. and Rahman, A.M.Z., 2017. Secure and efficient online data storage and sharing over cloud environment using probabilistic with homomorphic encryption. Cluster Computing, 20(2), pp.1561-1573.
23. Jasim, O.K., Abbas, S., El-Horbaty, E.S.M. and Salem, A.B.M., 2013. Efficiency of modern encryption algorithms in cloud computing. International Journal of Emerging Trends & Technology in Computer Science (IJETTCS), 2(6), pp.270-274.
24. Yong, P.E.N.G., Wei, Z.H.A.O., Feng, X.I.E., DAI, Z.H., Yang, G.A.O. and CHEN, D.Q., 2012. Secure cloud storage based on cryptographic techniques. The Journal of China Universities of Posts and Telecommunications, 19, pp.182-189.
25. Ramadan, E.H.H. and Djamilou, M.A., Using Cryptography Algorithms to Secure Cloud Computing Data and Services. American Journal of Engineering Research, 6(10), pp. 334-337.

Optimized Mobility Management scheme for Intelligent Transportation system in IOT

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Abstract

Internet of Things (IOT) is an assort of "universal global visual network" in the cloud which links various things. The IoT is a intelligently unite devices and systems which composed of smart machines interfacing and communicating with other machines, environments, objects and infrastructures and sensor network technologies will extend to meet this new challenge. IoT applications draw great interests recently. Intelligent Transportation system (ITS) is one of the most engaging applications of IoT. It is vital to adequately regulating various mobility in IoT/ITS to contribute consistent Internet connectivity. Now a day, demand of adaptable transportation system has rises with the increase in its utilization for distinct application areas. Connectivity of Vehicles to make them smart is commonly called as Internet of Vehicles (IoV). As a result, massive amount of data are being originated, gathered and that data is being refined into convenient actions that can "command and control" the things to make our lives much easier and safer. IoV is developed from Vehicular Adhoc Networks (VANETs) to fulfill the ambition of 'from smartphone to smartcar'. Mobility is the main concern in ITS. Mobility in wireless network basically relates to a node ie. Mobile node, shift its point of attachment to the network when its communication to the network remains steady and unbroken. The Existing mobility management protocols are needed to be expanded to sustain diverse mobility. These real-time services have a stringent necessity of mobility and scalability factors like end-to-end delay, jitter, congestion etc. to make certain, consistent and fair sign to the receivers. Therefore, the problem is often settled by smart optimization. Lately, some routing protocols BGP, EIGRP, OSPF etc have now been employed by the analysts to eradicate the multi-constrained scalable routing problem. Most current protocols that we use are designed for traditional networks without considering the asymmetric relationship between different types of nodes. A network-based mobility management scheme which supports group mobility to provide globally ubiquitous IOT/ITS services is needed. Firstly, some factors are decided which helps in the optimization of the protocol so that to design a more scalable protocol for the diverse transportation environment. The experiments has been done using Cisco Packet Tracer and Wireshark tool along with the help of data analysis toolbox. The experimental results has clearly shows that the proposed protocol outperforms over the available protocols

Keywords: IoT, ITS/IoV, OSPF, PMIPv6, 6Lowpan, Network-based mobility

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I. Introduction

The Internet of Things is a recent trend change in IT arena. Numerous objects are now joined to the internet is increasing day by day. This has led to formalizing a new supposed of Internet, generally called Internet of Things. The IoT is abbreviated as "Internet of Things" that is derived from the two words i.e. "Internet" and "Things". The "Internet" is being able to connect computer networks globally that based on stipulated protocols to deal with billions of users globally and the "Things" that can be any object (electronic devices, equipment's, monuments, furniture etc.) or an individual which can be recognizable by the real world. So we can say things are true objects in this natural or materialistic world.

Intelligent Transportation System is a structure within which interconnected systems work jointly to deliver transportation services. It determines how systems functionally operate and the linkage of information interchange that should take place between these systems to manage transportation services [14]. Intelligent Transportation system (ITS) is one of the most appealing applications of IOT. The existing mobility management proposals are needed to be extended to support diverse mobility [22].

Internet of Vehicles is a network of vehicles defined as a unification of three networks: an inter-vehicle network, an intra-vehicle network, and vehicular mobile network. Based on this concept of three networks merged into one, the Internet of Vehicles is interpreted as a huge distributed system for wireless communication and information interchange between vehicle, road, human and Internet, according to allowed communication protocols and data intercommunication standards[14].

Definition of Internet of Things (IOT)

"An open and generic network of intelligent objects that have the ability to auto-organize, share information, data and resources, reacting and acting in face of situations and changes in the environment" [2].

Fig 1 shows that with the internet of things, anything's will able to communicate to the internet at any time from any place to provide any services by any network to anyone. This concept will create a new types of applications can include such as smart vehicle and the smart home, to offer many facilities such as notifications, security, energy saving, automation, communication, computers and entertainment [4].

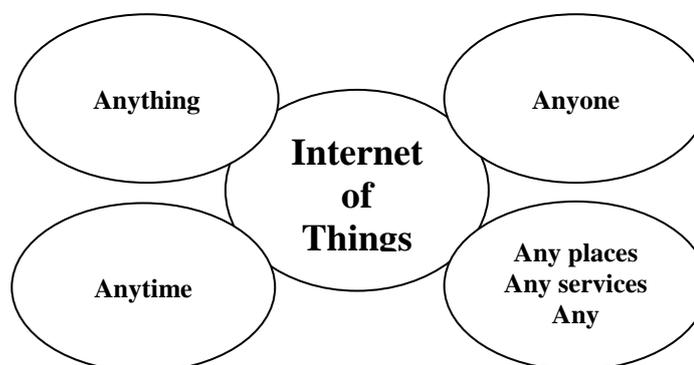


Fig 1: Internet of Things Concept [3]

Internet of things is a popular technology covers broad-spectrum of applications ranging from smart homes to smart organization and smart grid to vehicular networking [5]. Intelligent Vehicles that can communicate with each other are the essential feature of vehicular networks. Even they have resources for that intelligence: CPU, transceiver,

sensors and memory [6]. Among them, Intelligent Transportation System (ITS) is eager uses of IOT [7].

The OSPF (Open Shortest Path First) convention is one of a group of IP Routing conventions, and is an Interior Gateway Protocol (IGP) for the Internet, used to dispense IP directing data all through a solitary Autonomous System (AS) in an IP arrange. The OSPF convention is a connection state directing convention, which implies that the switches trade topology data with their closest neighbors. The topology data is overwhelmed all through the AS, so every switch inside the AS has an entire photo of the topology of the AS. This photo is then used to ascertain end-to-end ways through the AS, regularly utilizing a variation of the Dijkstra calculation. Along these lines, in a connection state steering convention, the following jump deliver to which information is sent is dictated by picking the best end-to-end way to the possible goal.

We start with the discussion on background and related works in Section II, followed by a brief analysis on Section III, Section IV explains the proposed mechanism while Section V presents the simulation setup. Section VI compares the proposed mechanism with earlier technique along with the analysis, Section VII provides discussion and performance evaluation of the proposed mechanism. Section VIII discusses some of the possible future direction of implementation and Section IX concludes the paper.

II. Background and Related Works

This section summarizes the studies which evaluated the technical feasibility of PMIPv6, 6Lowpan and 3G/4G cellular networks to support the vehicular networking applications in IoT.

To understand IoT and its basics aspects becoming the main requirement to understand its further concepts. Firstly, the authors examined about what IOT is, the means by which IOT empowers diverse advancements, about its engineering, qualities and applications, IOT utilitarian view and what are the difficulties for IOT[2]. Studies a system based versatility administration conspire which underpins worldwide gathering portability for IoT/ITS. As contrasted and a couple of understood conventions, the execution assessment shows that the proposed plan can enhance the handoff delay, flagging overhead, and power utilization in setting of IoT/ITS [3]. Further, the authors investigated handoff delay, signaling overhead, power consumption with number of packets and existing mobility conditions and proposed a network-based mobility management scheme which supports group mobility to provide globally ubiquitous IOT/ITS services [22]. Similarly, the authors in [12] exhibited that to plot in fact feasible correspondence engineering is having the capacity to help the stringent vitality and availability needs of the rising IoT. To this end, we have supported the network's view in the need of an institutionalized engineering which replaces restrictive methodologies by methods for a straightforward end-to-end design. Currently, distinct standardization parties and research consortium have revealed increasing interest in using LTE technology to support vehicular networking applications [21]. In this study, authors presented the broadly classified framework of IoV as a new theme of research and developed form VANET. The ease of the design and development of IoV are underlined by conducting a qualitative comparison between IoV and VANETs. Finally, the challenges ahead for realizing IoV and future aspects of IoV are discussed [20].

The protocols consist of set of rules which should be followed to route packets or delivery of any kind of data. Broadly, the authors investigated about various protocols and also contemplated the application level IoT conventions to be specific, The Constrained

Application Protocol (CoAP), Message Queuing Telemetry Transport (MQTT) and the Hypertext Transfer Protocol (HTTP)/REpresentational State Transfer (REST). They have used the cooja simulator for carrying out the simulation. They could make use of different topologies and simulate the scenario according to the requirement [8]. Even authors presented another TCP variation named XJTCP in view of a cross-layer approach, and it examines its execution in nearness of remote systems, contrasted and united TCP arrangements, for example, TCP Reno, JTCP, and VenoPlus. A few tests have been done, concentrating on goodput and decency parameters under irregular and burst misfortunes and diverse blockage designs. Execution correlation has additionally been done amongst JTCP and XJTCP as far as deferral, jitter, and parcel misfortunes [10]. Furthermore, the DLM was studied. As authors proposed a deferred area administration (DLM) plot where a MN puts off its coupling refresh until a pre-characterized clock T lapses. To advance the execution of DLM, we conceived a clock determination calculation and the ideal clock is adaptively set to a suitable esteem [11]. Even, to fulfill task of low power consumption with large bandwidth in IoT, the authors proposed for low power operations that make it adequate for the requirements i.e. 6LoWPAN. This protocol is proposed to minimize the insurance consumption, energy consumption, and bandwidth and demand consumption. The lower layer of 6LowPAN uses the PHY layer and the MAC layer from the IEEE802.15.4 whereas the network layer proceeds to adjust with IPv6 protocol. The adaption layer introduction in the 6LowPAN will undoubtedly inject delays or failures in the transmission function and security for the powerful nodes [15]. As considered more about protocols, the authors presented various techniques and technologies based on networking used by Internet of Things. Also compare them with one another based on their speciality, parameters and protocols used [17].

Modest devices with bounded CPU, memory and energy assets are named as constrained devices even could form a network, becoming "constrained nodes". These kinds of nodes fulfill the requirement of IoT to make smart objects, smart vehicles, smart home etc. For constrained nodes, the authors proposed a lopsided transport convention (ATP) that regards the unbalanced idea of the conveying hubs. As vitality utilization by remote sensor hubs has been viewed as a key issue for Internet of Things (IOT) because of the attributes of compelled assets in the sensor hubs [6]. Further, the authors exhibited an awry transport layer convention to suit the attributes of asymmetry in IoT and attempted to decrease the vitality utilization of the asset compelled hub. Since the transmission and gathering of parcels is the primary driver of vitality utilization in the asset compelled hub, the convention was planned by lessening the quantity of bundles sent and gotten by the asset obliged hub while expanding some calculation to understand the objective of bringing down the vitality utilization [9].

More recently, IoV have shown increasing interest in standardization bodies and work based on simulation studies are as described. In this study, the authors proposed and sent a total portable entryway programming design to help IoT interoperability through a cell phone driven application. The arrangement introduced can persistently gather and forward information originating from remote IoT gadgets and sensors transmitting over various correspondence interfaces and norms; also it can send control messages or information streams, for example, video spilling, to neighboring IoT gadgets in a sharp mold [13]. On a more analytical perspective, Javed proposed a novel medium access and transmission mechanism for WLANs that is specially designed to ensure QoS for triple play services.

The proposed mechanism used different parameters according to the traffic characteristics for better utilization of the available bandwidth. Simulation-based analysis shows the proposed scheme performed better as compare to traditional scheme[16]. Furthermore, the conception of hybrid networks for the vehicular networking has also been gauged to incorporate the prime form infrastructure-less and infrastructure-based approach domains. Zhao et al. [18] suggested 3G cellular-network-facilitated data transmission for vehicular ad hoc networks (VANETs). The approach influenced on a utility function that governs the interaction between data delivery ratio, delay, and 3G traffic budget. The validity of the proposed scheme is estimated through empirical study based on real trails. In [19], Busanelli et al. presented a heterogeneous network framework for smartphone-based information dispersion. The communication was shared between two two sort of vehicles, where primary vehicles acquire the role as a gateway of information from 3G/4G cellular network, while secondary vehicles interchange information by means of IEEE 802.11b-based ad hoc network.

III. Problem Statement

The problem which we have addressed in this paper is Intelligent Transportation System is used to improve the transportation system to make it more efficient and safer by use of information, communications and control technologies. But there arises some issues in IoT e.g. Energy consumption, delays, overheads, reliability, energy efficiency, latency, jitter which cause low performance of the system. Also, the widespread use of the Internet proposes great challenges for information security. Although there exist some protocols which work on these issues but existing transport protocols have some flaws related to multicast communication, overheads and power consumption and many more. So there is a great need to overcome these issues for betterment of this technology. Hence we have resolved some of these issues in our research. This research could be applied to future smart city projects which intend to implement Hybrid technology in their Intelligent Transportation System. In Smart City environment there exists lots of protocols like PMIPv6, 6LoWPAN, OSV3, TCP, VTP, etc. But still there is need to create new technology which removes the flaws of these existing protocols.

IV Proposed Solution

With time, need of scalable transportation system has increases with the increase in its usage for different application areas. This led to research works focus on improving IoT techniques based on requirements of the application and to handle large amount of mobile functionalities particular application generally focuses on one of its much functionality to suit to the requirement of that applications. Transportation System is one of those important areas of Internet of Things which needs to be still improved to handle a large volume of objects and make the exchange of information more effectively. In IoT, many researchers have done work on it and use protocols of many fields. End-to-end delay, power consumption, signalling overhead and scalability are some of the most important metrics in the internet of things (IoT) when routing from source to a destination. Mobile IP (MIP) was usually adopted for mobility management in IP-based networks with which the mobile hosts have to cooperate in the steep procedure of the mobility management. Remind that, diverse objects are interconnected in IoT/ITS. Recent approaches using network-based mobility management protocols to evaluate the performance with respect to signaling overhead and power consumption. The different optimization technique such as Proxy Mobile IPv6 (PMIPv6) is classifies as a local mobility protocol which drive the

MNs to move within the same PMIPv6 domain. As a result, the system load and routing overhead had grown up into noticeable weight when the PMIP domain grows large. Hence, 6lowpan which is a low-power wireless mesh network where every node has its own IPv6 address allowing it to connect directly to the internet and considered as a wireless extension of the internet. This motivated to perform research work on this area and choose the specified problem as described in the problem statement in the previous section with the following aims to improve security and scalability that will clearly justify the need for the chosen approach. Due to many advantages, for scalability concern best protocol is OSPF.

V. Basic Design of Proposed Work

First of all, Cisco packet tracer7.1 is used to make topology for designing. In this topology design there are four routers R0, R1, R2 and R3 are connected via gigabit ethernet cable. This is called With R1, cell tower is connected at left side through which IoT cars are connected and with R3 IoT database server is attached. IoT database server save whole information of all the connecting IoT objects by creating individual file of each object. IP addresses are assigned to each interface. First we create VLAN on all router points. Virtual Lan: Virtual Lan (VLAN) provide network segmentation but virtually. VLAN is used to improve security, network management and performance because it splits big network into multiple sub-network. VLAN1 is by default created and by default all ports are the member of vlan1. VLAN range: 1-1005, VLAN 1002,1003,1004,1005 all by default created and reserved for FDDI and token ring networks. Manual range of VLAN is from 2 to 1001. Even, Internet Service Provider (ISP) is created. Internet service provider is an organization who provides internet access to us. So it is also called Internet access provider. Through their ISP, all internet connected devices run each request for the purpose to access servers to download web pages and files and those servers themselves can only provide you those files through their own ISP. DNS server receive request from user and map the IP address then are able to connect to the internet and able to access specific programs. Routing with vlan is done with specific vlan name given to the router ends and without vlan, routing is directly done on interfaces. PMIPv6, Pagp, VTP, CDP protocol which runs at the backend when we apply OSPFv3 protocol. Security is implemented on server so that any router can access only desired data from the server. IPsec is used because it helps to remove congestion. It spoofs an IP address of the victim website and then sends DNS queries to DNS servers. The DNS servers respond, sending large amount of data to the victim. So, IPsec provide security automatically and provide authentication that is lacking in IPv4.

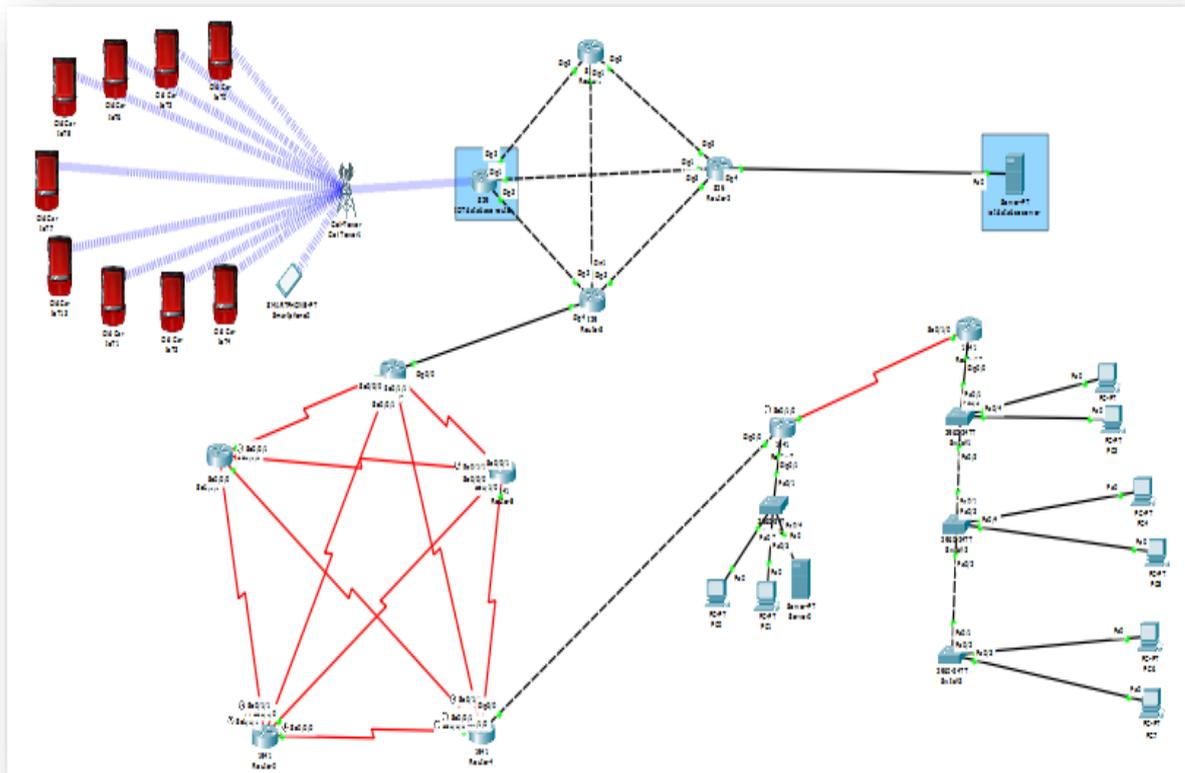


Fig 2: Proposed network architecture

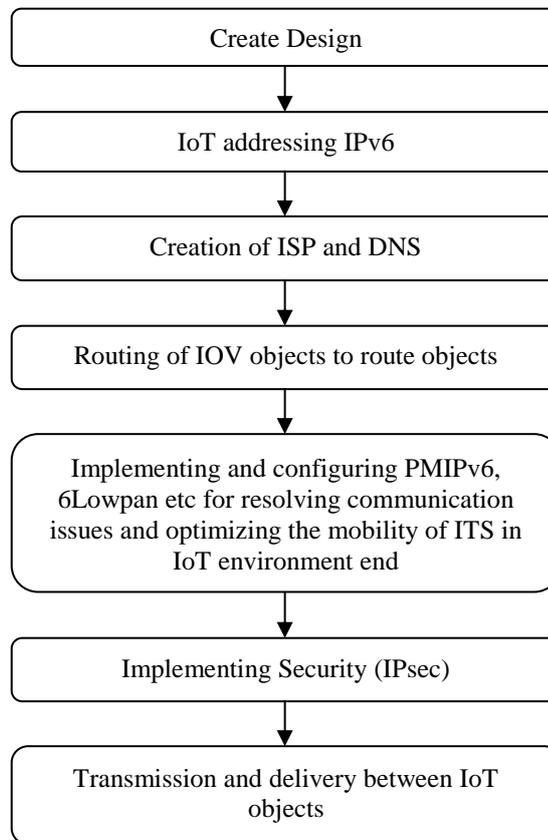
VI. Proposed Protocol Overview

To achieve our goal we propose some modifications in PMIPv6, 6Lowpan. The steps of proposed protocol are listed below:

Step 1: Initially, in order to make topology for designing Cisco packet tracer7.1 has been used

Step 2: After that, next step is assigning IP address. There is IPv6 addressing on all the interfaces. First we create Vlan on all router points. Virtual Lan: Virtual Lan (Vlan) provide network segmentation but virtually

Step 3: After IPv6 addressing, we create Internet Service Provider (ISP). We create ISP because we have cars and mobile phone that connects us to the internet. Through that device other capable devices reach the rest of the world and then we create DNS. Domain name system is used to map an alias address to the IP address. It is used by application programs for the mapping.



Step 4: Next step is Routing. To define the path Routing has been used that is the process used in different networks in wide area network. In framework static routing is used to create the route. With static routing, path define from source to destination is manually and it used the AD value is which is best value besides another routing. Routing with vlan is done with specific vlan name given to the router ends and without vlan, routing is directly done on interfaces.

Step 5: After that we implement the PMIPv6, Pagp, VTP, CDP protocol which runs at the backend when we apply OSPFv3 protocol.

Step 6: Now security is implemented on server so that any router can access only desired data from the server. IPsec is used because it helps to remove congestion.

Step 7: Now the data is transmitted and delivered between the desired nodes. After all the phases in this framework, last step is testing. In GNS-3 software, Wire-shark is the packet capturing tool is used for testing purpose in this tool there are many output taken of packets in graphs and packets.

VII. Test and Simulation Environment

The proposed Transportation method has been implemented using Cisco Packet Tracer7.1, Graphical Network Simulator-3 and Wireshark. Cisco packet Tracer 7.1 is an innovative and powerful networking simulation tool used for practise, discovery and troubleshooting. It has been released at the beginning of August on Cisco Netacad website. GNS-3 is a network simulator first released in 2008. This software allows the collaboration of virtual devices and Real devices. This GNS 3 used to simulate complex networks. It makes the use of Dynamips emulation software to simulate cisco inter operating system. Exxon,

Walmart, AT&T and NASA, are big companies which used Graphic network GNS-3 software and is also popular for preparation of network professional certification exams.

VIII. Numerical Analysis

In this analysis we emphasize mainly on four parameters. These parameters are end-to-end packet delivery delay, throughput, congestion, and scalability. Here we calculate how the above mentioned parameters are changed with an increasing time of network hierarchy for our proposed network architecture. We also compare the performance of our protocol with group mobility based NEMO scenario of PMIPv6 domain.

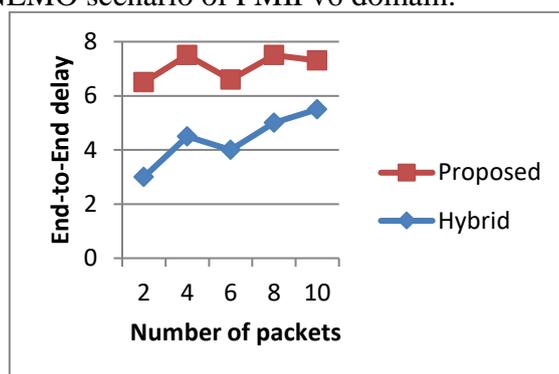


Fig 4: Delay Analysis

This figure depicts the x-axis as number of packets and y-axis as delay respectively. The blue line represents the existing protocol and the proposed solution is presented by the red line. The figure shows final results IoT transportation hybrid protocol. The graph shows the delay is decreased with the increase in number of packets.

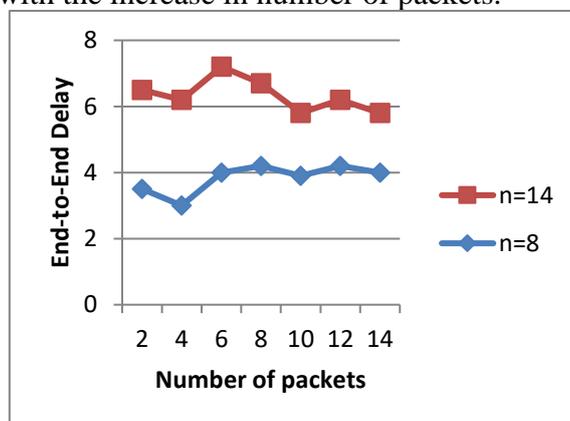


Fig 5: Delay Analysis on increasing number of nodes

This figure depicts the x-axis as number of packets and y-axis as delay respectively. The blue line represents the delay in less number of nodes and the delay with n=14 are presented by the red line. The graph shows the decline in delay with the rise in number of packets.

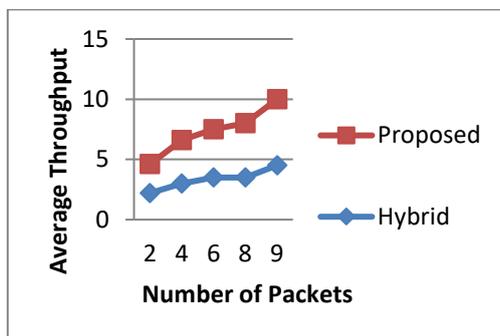


Fig 6: Throughput Analysis

This figure depicts the x-axis as number of packets and y-axis as throughput respectively. The blue line represents the existing protocol and the proposed solution is presented by the red line. The figure shows final results IoT transportation hybrid protocol. The graph shows the throughput is increased with the increase in number of packets.

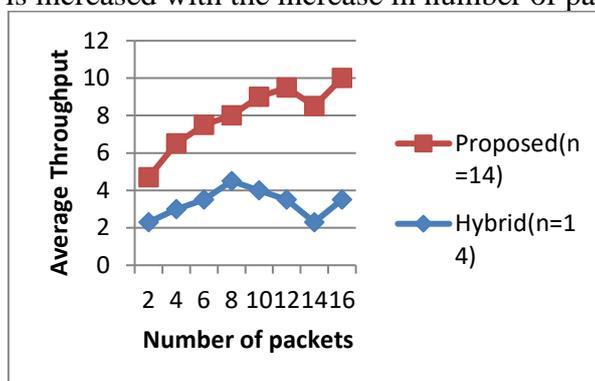


Fig 7: Throughput Analysis

The graph shows the throughput depends upon the number of packets passed during an interval i.e. throughput is increased with increase in packets transferred in less time.

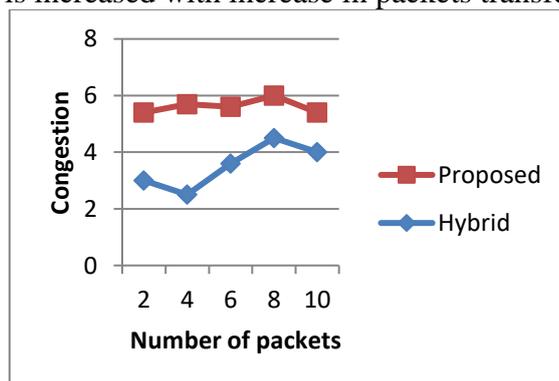


Fig 8: Congestion Analysis

The graph is plotted between congestion and number of packets to compare existing protocol with the proposed protocol. The results show that proposed protocol gives less congestion than existing protocol. Proposed protocol gives the least sensitivity with milled variations with increasing number of packets.

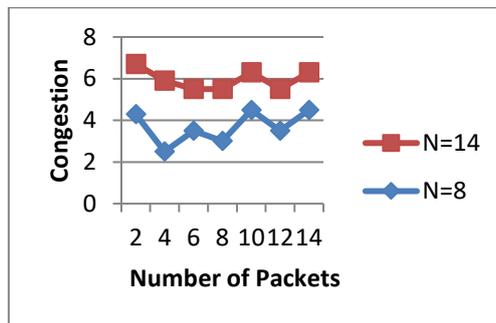


Fig 9: Congestion Analysis (n=14)

The graph is plotted between congestion and number of packets to compare congestion when n=14 and n=8. The results show that congestion decreases when delivery of number of packets increases. Proposed protocol with increasing number of nodes gives the least sensitivity with milled variations.

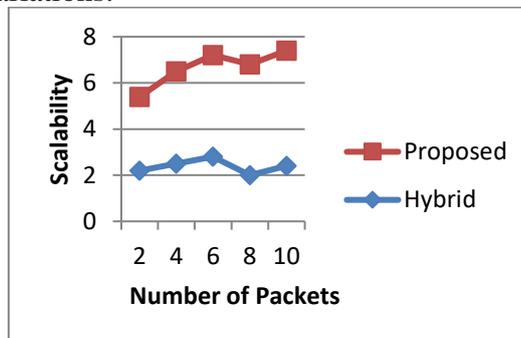


Fig 10: Scalability Analysis

The graph is plotted between scalability and number of packets to compare existing protocol with the proposed protocol. The results shows that Existing protocol produce scalability issues where as proposed protocol is more scalable.

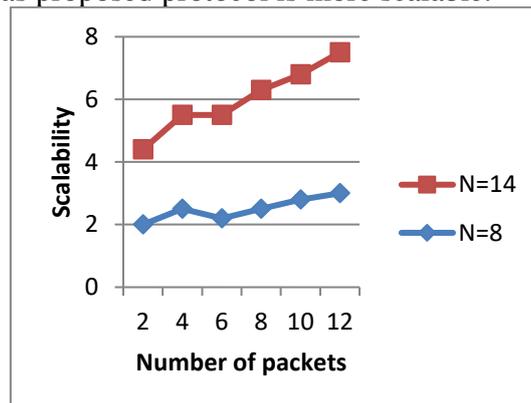


Fig 11: Scalability analysis

The graph is plotted between scalability and number of packets to compare existing protocol with the proposed protocol. The results shows that Existing protocol produce scalability issues where as proposed protocol is more scalable. On increasing number of nodes scalability increases.

IX. Conclusion

Intelligent Transportation System is used to improve the transportation system to make it more efficient and safer by use of information, communications and control technologies.

With the help of authentication mechanism, the sender can send the data intended user and denied by other users. Various kinds of methods are available which help to protect the data and help to send it to intended receivers but still there are various issues due to which data delivery in transportation system suffers. The existing studies provide the detail description of various methods/protocols that lead to good packet delivery. Mobility policies are classified to generate transportation mechanisms at various levels. But still there is need to verify the encryption and decryption mechanisms against security of data. The above research study here deals with the data security and also with the performance enhancement mechanism to identify the issues to secure the data delivered among different nodes and store data on server. The protocol is tested against the various parameters practically; the concept is checked for scalability, congestion and also to minimize the required time for all processing i.e. Through put. The results demonstrate the scalability of the transportation mechanism. Through our effort in creating a Transportation network using GNS3 have allowed us to develop expertise and become technically competent with IPv6 technology in an academic environment. It can increase our knowledge towards the IPv4 to IPv6 transition and migration in transportation system. We have also been able to discover the basic of IPv6 technology and implementation of transition mechanisms. It also gave us the opportunity to test and understand the IPv6 technology with IOT before any real implementation time comes. This work could be applied to other organizational setting which intends to implement IPv6 in IOT object interconnections. The study will be any extended by considering low and high interval, security, ability. Try and scale back the congestion issue for higher delivery and communication interms of variety of packets delivered. So, we are able to compare it with different security techniques.

References

- [1] L. Atzori, A. Iara, G. Morabito "Understanding the Internet of Things: definition, potentials, and societal role of a fast evolving paradigm" in Ad Hoc Networks Volume 56, 1 March 2017, Pages 122-140
- [2] K. K. Patel, S. M. Patel "Internet of Things-IOT: Definition, Characteristics, Architecture, Enabling Technologies, Application & Future Challenges" in International Journal of Engineering Science and Computing, Volume 6 Issue No. 5, 2016, pp. 6122-6131
- [3] Y.W. Lin, Y.K. Hsiao, Z.S. Yeh, "A new mobility management scheme for Intelligent Transportation System" Wireless Personal Communications September 2017, Volume 96, Issue 2, pp 3081–3112
- [4] W. Ejaz, M. Naeem, A. Shahid, A. Anpalagan and M. Jo, "Efficient Energy Management for the Internet of Things in Smart Cities," in IEEE Communications Magazine, vol. 55, no. 1, pp. 84-91, January 2017.
- [5] O. Kaiwartya *et al.*, "Internet of Vehicles: Motivation, Layered Architecture, Network Model, Challenges, and Future Aspects," in IEEE Access, vol. 4, pp. 5356-5373, 2016.
- [6] A. Rayes and S. Salam "The Internet in IoT—OSI, TCP/IP, IPv4, IPv6 and Internet Routing" in Springer International Publishing Internet of Things From Hype to Reality, The Road to Digitization, 2017, pp. 35-56
- [7] S. Gill, P. Chawla, P. Sahni and S. Kaur "An Effective and Empirical Review on Internet of Things and Real-Time Applications" in Springer Advances in Computer and Computational Sciences, Advances in Intelligent Systems and Computing, 2018, pp. 159-167

- [8] H. Chaudhary, N. Vaishnav and B. Tank "Comparative Analysis of Application Layer Internet of Things (IoT) Protocols" in Springer Information and Communication Technology for Sustainable Development, pp 173-180
- [9] Y. Zhang, J. He, and M.S. Pathan "An Asymmetric Transport Protocol for Internet of Things" in Procedia Computer Science Volume 107, 2017, Pages 636-641
- [10] A. Andreadis, S. Rizzuto, R. Zambon, "A cross-layer jitter-based TCP for wireless networks" in EURASIP Journal on Wireless Communications and Networking, December 2016, pp. 1-13
- [11] H. Ko, S. pack, J-H Lee, A. Petrescu "DLM: Delayed location management in network mobility-based public transportation system" in Journal of Network and Computer Applications Volume 85, 1 May 2016, Pages 127-133
- [12] M. R. Palattella *et al.*, "Standardized Protocol Stack for the Internet of (Important) Things," in IEEE Communications Surveys & Tutorials, vol. 15, no. 3, pp. 1389-1406, Third Quarter 2013.
- [13] G Aloï, G Caliciuri, G Fortino, R Gravina, P Pace, W Russo, C Savaglio, "Enabling IoT interoperability through opportunistic smartphone-based mobile gateways" in Journal of Network and Computer Applications Volume 81, 1 March 2016, Pp. 74-84
- [14] H. Park, Z. Khattak, B. Smith "Glossary of Connected and Automated Vehicle Terms" by University of Virginia Center for Transportation Studies for the Connected Vehicle Pooled Fund Study, Version 1.0, 2018, pp. 1-28
- [15] S. Kaur, Dr. N. Sharma "Overview of Various Routing Protocols in Wireless Sensor Networks " in Journal of Network Communications and Emerging Technologies (JNCET) Volume 2, Issue 2, 2015, pp. 41-44
- [16] Y. Javed, A. Baig and M. Maqbool "Enhanced quality of service support for Triple Play Services in IEEE 802.11 WLANs" in Springer EURASIP journal on Wireless communication doi: 10.1186/s13638-014-0233-x, 2015, pp. 1-14
- [17] J. TAN, S. G. M. Koo "A survey of technologies in Internet of Things" in IEEE International Conference on Distributed Computing in Sensor Systems, doi: 10.1109, 2014, pp. 269-274
- [18] Q Zhao, Y Zhu, C Chen, H Zhu, L Bo " When 3G meets VANET: 3G-assisted data delivery in VANETs" in IEEE SENSORS J. 13, 10, 2013
- [19] S. Busanelli, F. Rebecchi, M. Picone, N. Iotti, G. Ferrari "Cross- network information dissemination in vehicular ad hoc networks (VANETs): experimental results from a smartphone-based testbed". Future Internet 5(3), doi: 10.3390/fi5030398, 2013, pp. 398-428
- [20] O. Kaiwartya, A. H. Abdullah, Y. Cao, A. Altameen, M. Prasad, C.T Lin, X. Liu "Internet of Vehicles: Motivation ,Layered architecture, Network Model, Challenges, and Future Aspects" in IEEE access, doi:10.1109/ACCESS.2016.2603219,2016, pp. 1-17
- [21] G.Araniti, C. Campolo, M. Condoluci, A. Iera, A. Molinaro, "LTE for vehicular networking: a survey" in IEEE Commun. Mag. 51 (5), 2013, pp. 148-157
- [22] Y.W. Lin, Y.K. Hsiao, Z.S. Yeh "A new mobility management scheme for Intelligent Transportation System" in Springer Science+Business media New York 2017

An OSPF Based Hybrid Encryption Algorithm for the Cloud Data Security

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Sarpreet Singh **

Abstract

Information security has reliably been a noteworthy issue in data innovation. In the cloud environment, it turns out to be especially serious on the grounds that the information is situated on various places over the world. Information security and security assurance are the two principle variables of client's worries about the cloud environment. The broad utilization of the Internet proposes incredible difficulties for data security. Secure routing is an important factor to guarantee security on the cloud. With loads of advantages of cloud still it experiences different constraints or difficulties, among which security is the fundamental concerning issue in distributed computing. There are different existing investigations that give cloud security system yet at the same time endure as far as effectiveness and furthermore various attacks on the information. The examination here manages an OSPF based hybrid encryption algorithm for the cloud information security. The algorithm is tried against the different security assaults essentially; the idea is checked for productivity and furthermore to limit the required time for processing. The outcomes exhibit the proficiency of the cloud security mechanism. Simulation results demonstrate that the proposed algorithm is more compelling and productive in terms of cloud security and different attacks.

Keywords: OSPF, routing protocol, attacks, hybrid encryption, data security.

I. Introduction

Over the recent couple of years, distributed computing has created from being a promising business thought to one of the rapidly growing segments of the IT business. Regardless, as continuously and more information on individuals and associations are set in the cloud, concerns are beginning to create about precisely how safe a domain it is. Despite of all the development including the cloud, customers are so far hesitant to send their business in the cloud. Security is one of the noteworthy issues which diminish the advancement of cloud computing and traps with data security and data affirmation continue building persistent inconvenience in the market [12].

Far reaching utilization of the Internet proposes extraordinary difficulties for data security. Routing protocols are utilized to disseminate organize topology data among routers. Routers locate the best course as indicated by the topology data, and understand the system information sending. Without revise router data, the system bundle transmission is wasteful or inconsistent, which may even reason network failed. Accordingly, secure routing protocol is an important factor to guarantee cloud security [7].

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So, there is a need to design and create a hybrid cloud security routing protocol. On the other hand, efficiency has always been a key issue for cloud data storage for various Cloud service providers and end users. So, protocol should boost up the efficiency of system.

The remaining portions of the paper are structured as: section II demonstrates the related work done by past decade researchers, section III talked about the proposed strategy, section IV shows the experiment results and discussion, and at the end section V concludes the paper and gives future directions to researchers in cloud data security field.

II. Related Work

A brief survey [1] on cloud computing shows that cloud computing has enormous amount of advantages such as it saves up the up-front cost, maintenance costs, scalability, availability etc. As each coin has two sides, so with the cloud. Security in cloud being the biggest question mark because it still suffers from various security breaches and it prevents cloud to be utilized at its golden level.

There are various surveys [2]-[6] presented by past decades researchers that signifies that the cloud data security is a noteworthy issue that must be addressed to take up the cloud benefits.

A hybrid encryption algorithm [7] that includes categorization of the data on the basis of their sensitivity and importance, followed by various cryptography techniques such as the AES, SHA-1, and ECC. The hybrid algorithm was designed and implemented for securing cloud data using three different security policies for three different types of sensitive data to maximize control of data owner on storing, processing and accessing on it. The proposed algorithm was found to be highly secure for all types of sensitive data cloud environment but still there is a requirement to utilize the hybrid algorithm to test various security attacks practically.

A survey [9] about various popular encryption algorithms such as RSA, DES, 3DES and AES found that AES algorithm is most efficient in terms of speed, time, and throughput and avalanche effect. The Security provided by these algorithms can be enhanced further, if more than one algorithm is applied to data. So, work can be done on the combinations (hybrid) of these algorithms to find more security in cloud.

Study here deals with the cloud security and also with the verification mechanism to identify the attacks to secure the data stored on cloud. The algorithm is tested against the various security attacks practically; the concept is checked for efficiency and also to minimize the required time for all processing. The results demonstrate the efficiency of the cloud security mechanisms.

III. Proposed Technique

A. Algorithm for proposed work

There are different steps that are used in the implementation and define the proposed technique.

Step 1: Registration of the user with CSP

- a) Enter User Particulars,
- b) Choose USER_Name, PWD
- c) Enter M_Number

Step 2: if (USER_Name is valid) then

- a) Generate a random key Rkey at CSP end and send it to user
- b) Generate an OTP at CSP end
- c) UserOTP CSPOTP

- d) Enter the User OTP received on user registered mobile
 - e) if (Entered OTP ← CSPOTP) then
 - i. Message: New User is registered
 - ii. go to step 3
 - else
 - i. Message: Unmatched OTP & registration is canceled
 - ii. go to step 10
 - else
 - i. Message: Invalid USER_Name, Choose some other USER_Name
 - ii. Go to step 2
- Step 3: Selecting the category of the data. Based on the sensitivity of the data FPFID, categorize it into following categories:
- i. NP (No Privacy) – Mainly Public Data so no encryption is required
 - ii. PTP (Privacy with Trusted Provider) –Data with little importance and the trusted CSP is allowed to store it into encrypted mode
 - iii. PNTP (Privacy with NON Trusted Provider) – Data with more sensitivity and importance and the encrypted data is sent to non trusted CSP which again store it into encrypted mode
- Step 4: Uploading of user file to CSP
- a) Select file FP in Plain text mode & assign a unique file ID FID
 - b) $\delta pc \leftarrow$ Privacy Category of file FPFID
- Step 5: if $\delta pc \leftarrow$ NP then
- a) Send (FPFID, NP, USER_ID) to CSP via SSL
 - b) Store in CSP storage with replication factor 3 in plain text form.
- Step 6: if $\delta pc \leftarrow$ PTP then
- a) Send (FPFID, PTP, USER_ID) to CSP via SSL
 - b) Generate a symmetric key CSPpub1 at CSP end
 - c) CSP_FCFID Encrpt_AES (FPFID, FID, CSPpub1)
 - d) Store CSPpub1 at CSP end database.
 - e) Store CSP_FCFID at CSP storage with replication factor 3
- Step 7: if $\delta pc =$ PNTP then
- a) Generate an IPsec code for file
$$IPSec \leftarrow IPsecCODE_SHA_1(OSPF,IPSec)$$
 - b) Generate a symmetric key USERPub for IPsec by AES algorithm
 - c) Store IPsec and USERPub in User's Database
 - d) Send (OSPF,IPsec) to CSP via SSL
- Step 8: User's Authentication Request to CSP
- a) Enter USER_Name, PWD
 - b) if (USER_NAME is valid? && Password matched?) then
 - i. Generate an OTP at CSP end
 - ii. UserOTP CSPOTP
 - iii. Enter the User OTP received on the user registered mobile
 - iv. if (Entered OTP ← CSPOTP) then
 - i) Message: Cloud access is allowed
 - ii) Send USER_ID to CSP
 - iii) go to step 8

else

a. Message: Unmatched OTP & login is canceled

b. Exit

else

a) Message: Invalid User Credentials, Re enter the correct credentials

b) go to step 7

Step 9: Data retrieval and verification Process

a) CSP will list all users' file against that USER_ID

b) The user will opt FC2FID with its privacy category δpc from the list

c) if ($\delta pc == NP$) then

(i) CSP will send the file (FPFID, USER_ID) to user via SSL

d) if ($\delta pc == PTP$) then.

(i) At CSP end, the encrypted file is decrypted

FPFID ← Decrpt_AES

(CSP_FCFID, FID, CSPpub1)

(ii) CSP will send the file (FPFID, USER_ID) to user via SSL

1. Message: File is retrieved successfilly

2. Send ACK to CSP

3. go to step 10

else

1. Message: File is Corrupt

2. Send NAK to CSP and start legal procedure

3. go to step 10

Step 10: EXIT

IV. Experiment Results and Discussion

A. Choice of Platform

The proposed method has been implemented using **Graphical Network Simulator-3** is a network simulator first released in 2008. This software allows the collaboration of virtual devices and Real devices. This GNS 3 used to simulate complex networks. It makes the use of Dynamics emulation software to simulate cisco inter operating system. Exxon, Walmart, AT&T and NASA, are big companies which used Graphic network GNS-3 software and is also popular for preparation of network professional certification exams. Until 2015, the software was downloaded 11 million times. This software helps you build all the graphic models of computer networks scenario, and simulate networks of many different levels of complexity. Students can use this program to get various certifications, but also by network engineers and professionals in this field. It comes as an open-source solution that runs on all popular windows. GNS3 comes with a lot of detailed documentation regarding its features and tools, as well as their functionality.

Wireshark is a free and open source packet analyzer. It is generally used for network troubleshooting, analysis, software and communications protocol development, and education. Originally known as Ethereal, the project was renamed Wireshark in May 2006 due to trademark issues. Wireshark is a cross-platform, by using the Qt widget toolkit in current releases to implement its user interface, and using pcap to capture packets; it is compatible with on GNU/Linux, OS X, BSD, Solaris, some other Unix-like operating systems, and Microsoft Windows. There is a terminal-based (non-GUI) version also, called

TShark, Wireshark, and the other programs distributed with it such as TShark, are free software, released under the terms of the GNU General Public License.

B. Experimental Setup

Experimental setup describes the hardware and software requirement as follows:

a. Hardware Requirements

- Core i5 processor
- 1 GB RAM
- 80 GB HDD

b. Software Requirements

- Window 8
- GNS
- Wireshark
- Packet Tracer 7.1

c. GNS3

GNS3 is utilized by a huge number of system engineers worldwide to copy, design, test and investigate virtual and genuine systems. GNS3 enables you to run a little topology comprising of just a couple of devices on your PC, to those that have numerous devices facilitated on different servers or even facilitated in the cloud.

GNS3 is open source software which you can download and use for free. The source code is available on GitHub if you are interested in taking a peek at the code. GNS3 provides an easy, cost effective way to new software such as management or SDN software. It allows you to test multi vendor interoperability using a virtual lab environment rather than requiring dedicated physical equipment.

An entire GNS3 topology can be created and run on a single laptop. This allows engineers to demonstrate topologies and software to clients and others on the road.

C. Results

There is an output taken on graphic network simulator in which packets are sending and receiving from source and destination .When the packet is going to reach on destination then router send an advertisement to destination via network with the help of icmpv6 protocol which is internet control message protocol version 6 in IPv6 address. The link local address are also used in between source to destination and then router send reply of all the advertisement back and loopback address ::1 is used to set the connectivity between its own router and sending receiving updates. With this virtually one single link will give the best reliability because bandwidth is combined virtually with Port aggregation protocol (PAgP).

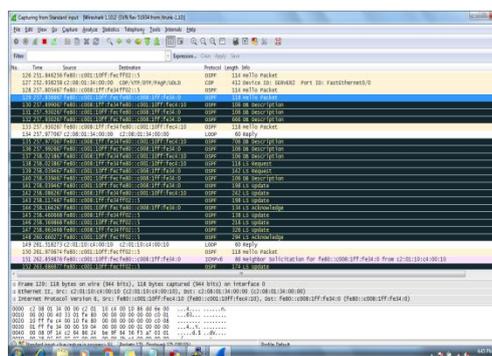


Figure 4.1: Output of sending and receiving pack

Eigrpv6 Route Exchange

In this graph, the hybrid protocol is used for routing purpose. The protocol is Enhanced Interior Gateway Routing Protocol is a Cisco Proprietary routing protocol. EIGRP sends packet from source and get reply from destination and also get advertisement from router. ICMPv6 is an integral part of IPv6 and performs error reporting and diagnostic functions (e.g., ping), and has a framework for extensions to implement future changes. EIGRP can exchange routes for IPv6 and it supports multiple protocols. Server receives packets from client side by EIGRP routing. When the server sends reply to source then the packet passes from three destinations CDP/VTP/DTP/PAGP. CDP is used to share information about other directly connected Cisco equipment, such as the operating system version and IP address. CDP can also be used for On-Demand Routing, which is a method of including routing information in CDP announcements so that dynamic routing protocols do not need to be used in simple networks. DTP aids with trunk port establishment. Neither protocol transmits the data frames that trunks carry. PAGP is used for the automated, logical aggregation of Ethernet switch ports, known as an EtherChannel.

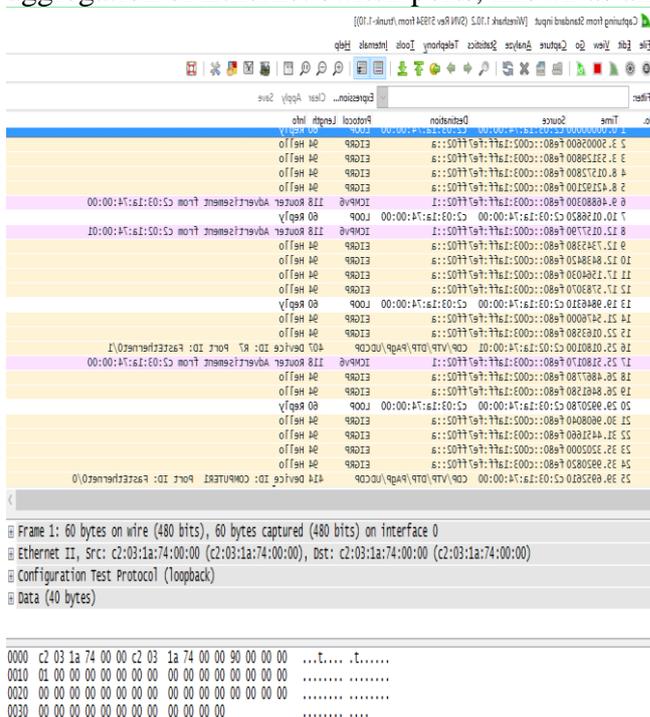


Figure 4.2: EIGRP Routing Packet Loss Transitions

In this graph, without any filter during the transition, when we send or receive packet there are some losses occur. There is a board line when the size of FBar is increase then shows packet loss is increases. Efficiency given on X axis and Time is on Y axis .It shows that time is increases IPv6 network provides a means to take this communications path and it will connect to destination ipv6 hosts followed the output of without filter of TCP packets .

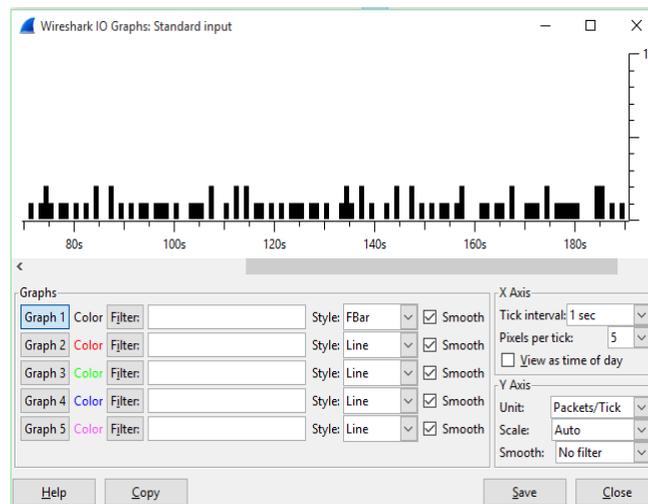


Figure 4.3: Without any filter during transition

OSPF Routing

In this packet Router 1 as a source want to reach destination then router send an advertisement to destination via network with the help of Cisco discovery protocol (CDP) and Virtual trunking protocol(VTP) and Dynamic trunking protocol (DTP) used for set the host connectivity which is a Cisco proprietary protocol that propagates the definition of Virtual Local Area Networks and all the host sending a reply via DTP and Port aggregation protocol (PAgP) which is also known for ether channel with the work of binding the many links into one single link. With this virtually one single link will give the best reliability because bandwidth is combined virtually with PAgP.

The OSPF protocol is a link-state routing protocol, which means that the routers exchange topology information with their nearest neighbors. The topology information is flooded throughout the AS, so that every router within the AS has a complete picture of the topology of the AS. This picture is then used to calculate end-to-end paths through the AS, normally using a variant of the Dijkstra algorithm. Therefore, in a link-state routing protocol, the next hop address to which data is forwarded is determined by choosing the best end-to-end path to the eventual destination.

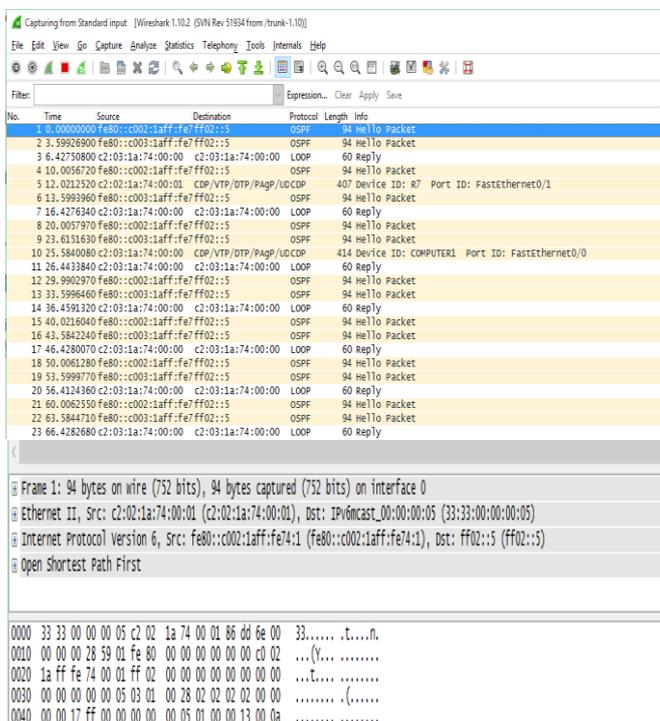


Figure 4.4: Output using OSPF routing

Packet Stability Student, Department of Computer Science and Engineering, SGGS World University, Fatehgarh Sahib, Punjab *in OSPF*

In this graph, without any filter during the transition, when we send or receive packet there are some losses occur. There is a board line when the size of FBar is increase then shows packet loss is increases. Efficiency given on X axis and Time is on Y axis .It shows that time is increases IPv6 network provides a means to take this communications path and it will connect to destination ipv6 hosts followed the output of without filter of TCP packets.

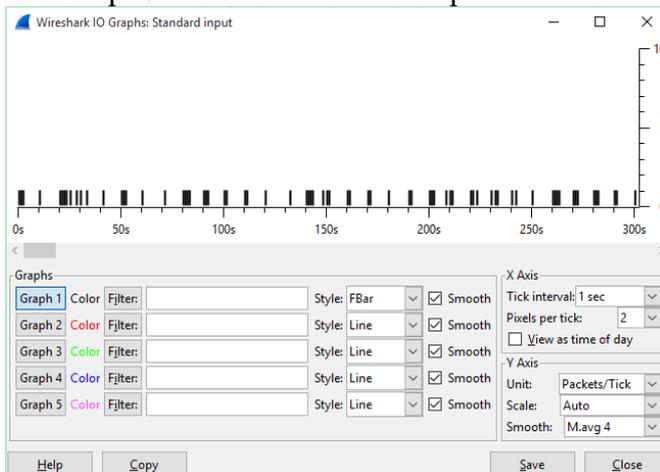


Figure 4.5: Graph with OSPF routing

Debugging

In this graph, before security implementation the secure socket state with SPI 256 transition to CLOSING and also removing authentication policy. The security is not is proper implemented. When the SHA1 authentication used the security is more stable and give better results .When the security attacks is performed on the hybrid algorithm. The

key is not easy for the attacker to break the security. The IPv6 address takes place in graph which is advanced internet protocol.

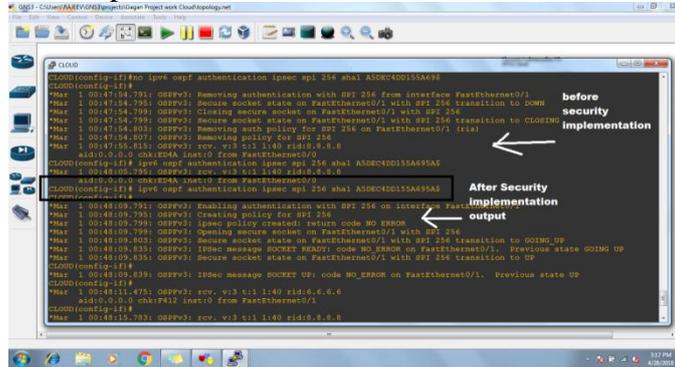


Figure 4.6: Security Implementation with IPSec Configuration

Router Advertisement Discovery Protocol

In this output same as Router 1 now router 2 receive an advertisement from source network with the help of Cisco discovery protocol (CDP) and Virtual trunking protocol (VTP) and Dynamic trunking protocol(DTP) used for set the host connectivity which is a Cisco proprietary protocol that propagate the definition of Virtual Local Area Networks and all the host sending a reply via DTP and Port aggregation protocol (PAgP) which is also known for ether-channel with the work of binding the many links into one single link.

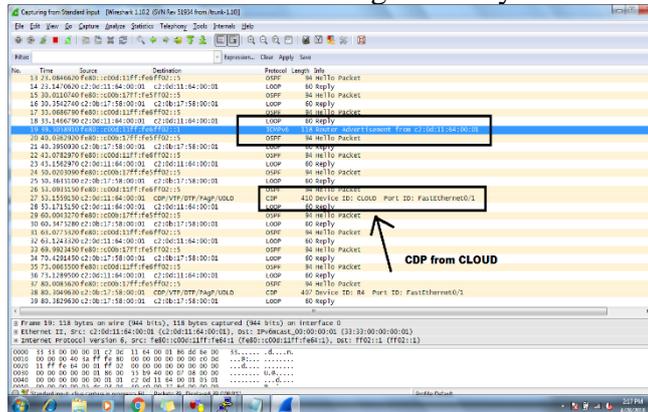


Figure 4.7: CDP from Cloud

IPsec Security

In this output, the IPv6 addressing uses the OSPF authentication which provide security to information. In the OSPF the protocol varies that is IPsec which uses the SPI key for security purpose. The breakage of Key is not so easy for the attacker. The SHA-1 authentication uses the 40 character key which is implemented by the user. This key is used for the End-to-End Encryption and also avoid the Man-in-Middle Attack. The graph shows that the ICMP Protocol which use the IPv6 routing if the packet come and the authentication checked by SHA-1 which verify all the information and then send further which creates the proper security process. Now the user information is more stable.

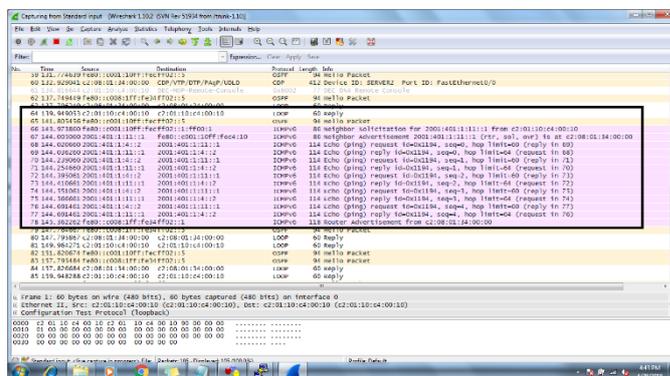


Figure 4.8: Output of SPI Key Generation

D. Comparison graph between efficiency and the processing time

Here the comparison takes place between existing approach that is Hybrid protocol and the proposed approach which is based on Hybrid Algorithm. The results produced by the work are better than the previous work done.

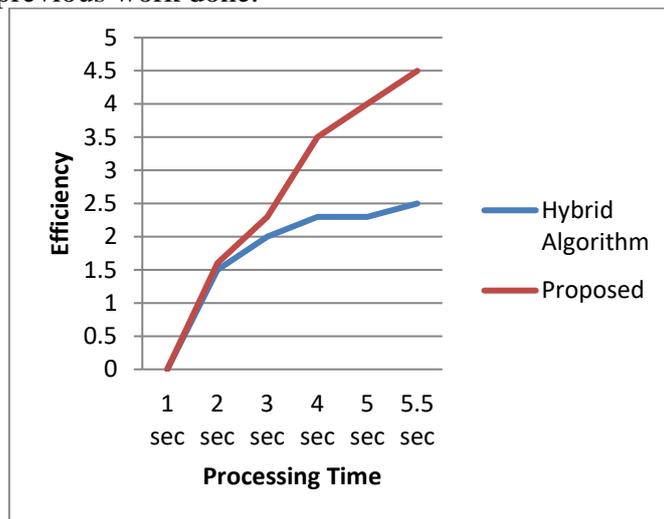


Figure 4.8: Comparison graph between efficiency and processing time

V. Conclusion

Cloud computing is an emerging technology that is growing very rapidly. As the user store all the data over the cloud with encryption mechanism so that no other user or unauthorized user can access it. With the help of authentication mechanism and decryption key, the receiver can access the data from cloud. There are numerous techniques which help to protect the data but still there are various attacks due to which cloud security suffers. Study here deals with the cloud security and also with the verification mechanism to identify the attacks to secure the data stored on cloud. The algorithm is tested against the various security attacks practically; the concept is checked for efficiency and also to minimize the required time for all processing. The results demonstrate the efficiency of the cloud security mechanism.

The study can be further extended by considering low and high response time. The future work can also include the parameters such as convergence time, cost factor for communication.

References

- [1] Hibatullah Alzahrani, "A Brief Survey of Cloud Computing", *Global journal of computer science and technology*, vol. 16, Issue 8, 2016.
- [2] Akanksha Dubey, "Cloud computing and Its Security Issues", *International Journal of Advanced Research in computer Science and Management studies*, vol. 4, Issue 7, July 2016.
- [3] Rong, Chunming, Son T. Nguyen, and Martin Gilje Jaatun, "Beyond lightning: A survey on security challenges in cloud computing", *Computers & Electrical Engineering*, vol. 39, Issue 1, pp. 47-54, 2013
- [4] PS Yoganandani, Rahul Johari, Kunal Krishna, Rahul Kumar, Sumit Manurya, "Cleraning The Clouds On Cloud Computing", *International Journal of Recent Development in Engineering and Technology*, vol. 1, Issue 1, July 2014.
- [5] S. Subashini, Veeraruna Kavitha, "A survey on security issues in service delivery models of cloud computing", *Journal of network and computer applications*, vol. 34, Issue 1, pp. 1-11, 2011.
- [6] Hashizume, Keiko, David G. Rosado, Eduardo Fernández-Medina, and Eduardo B. Fernandez, "An analysis of security issues for cloud computing", *Journal of internet services and applications*, vol. 4, Issue 1, 2013.
- [7] Goyal, Vikas, and Chander Kant, "An Effective Hybrid Encryption Algorithm for Ensuring Cloud Data Security", *Big Data Analytics*, Springer, pp. 195-210, Singapore, 2018.
- [8] Gardner, Jeffery, "Techniques for Secure Data Transfer", *Information Technology-New Generations*, pp. 87-93, Springer, Cham, 2018.
- [9] G.Singh, Supriya, "A Study of Encryption Algorithms (RSA, DES, 3DES and AES) for Information Security" *International Journal of Computer Applications*, vol. 67, Issue 19, April 2013.
- [10] K.Munir, S. Palaniappan, "Framework for Secure cloud Computing", *International Journal on Cloud Computing Services and Architecture*, vol.3, Issue 2, April 2013.
- [11] S.D. Ulhe, "Security in Cloud Computing using Encryption", *International Conference on Science and Technology for Sustainable Development*, doi: 10.1005, 2016, pp. 159-162.
- [12] Jing, Xue, and Zhang Jian-Jun, "A brief survey on the security model of cloud computing", *9th International IEEE Symposium on Distributed Computing and Applications to Business Engineering and Science (DCABES)*, pp. 475-478, 2010.
- [13] Ramanamurthy, Banda SNV, and D. Sirisha, "A Hybrid Methodology for Multi-owner Information Sharing in Untrusted Cloud Using Secure Mona Convention", *2nd International Conference on Micro-Electronics, Electromagnetics and Telecommunications*, Springer, pp. 21-29, Singapore, 2018.
- [14] Bala, Yogesh, and Amita Malik, "Biometric Inspired Homomorphic Encryption Algorithm for Secured Cloud Computing", *Nature Inspired Computing*, pp. 13-21, Springer, Singapore, 2018.
- [15] K.S.Rao, "A Survey on Authorized Deduplication Techniques in Cloud Computing", *International Journal of Engineering Science and Computing*, vol. 6, Issue 3, 2016.
- [16] Jayapandian, N., and AMJ Md Zubair Rahman. "Secure and efficient online data storage and sharing over cloud environment using probabilistic with homomorphic encryption." *Cluster Computing journal*, vol. 20, Issue 2, pp. 1561-1573, 2017.

- [17] PENG Yong, ZHAO Wei, XIE Feng, DAI Zhong-hua, GAO Yang, CHEN Dong-qing, "Secure cloud storage based on cryptographic techniques", *The Journal of China Universities of Posts and Telecommunications*, vol. 19, pp. 182-189, 2012.
- [18] Bokhari, Mohammad Ubaidullah, and Qahtan Makki Shallal, "Evaluation of Hybrid Encryption Technique to Secure Data during Transmission in Cloud Computing", *International Journal of Computer Applications*, vol. 166, Issue 4, 2017.
- [19] Yang, Li, Ziyi Han, Zhengan Huang, and Jianfeng Ma, "A remotely keyed file encryption scheme under mobile cloud computing", *Journal of Network and Computer Applications*, vol. 106, pp. 90-99, 2018.
- [20] Wu, Xiaotian, Jian Weng, and WeiQi Yan, "Adopting secret sharing for reversible data hiding in encrypted images", *Signal Processing*, vol. 143, pp. 269-281, 2018.
- [21] Zuo, Cong, Jun Shao, Joseph K. Liu, Guiyi Wei, and Yun Ling, "Fine-grained two-factor protection mechanism for data sharing in cloud storage", *IEEE Transactions on Information Forensics and Security*, vol. 13, Issue 1, pp. 186-196, 2018.
- [22] Saraswathi, M., and T. Bhuvaneshwari, "A Secured Storage using AES Algorithm and Role Based Access in Cloud", *IJSRSET*, vol. 3, issue 5, ISSN: 2394-4099, 2017.
- [23] Satankar, Nisha, and Vijay Kumar Verma. "A Self Generated Private Key Based Cryptographic Algorithms", *International Journal of Recent Innovation in Engineering and Research*, vol. 2, Issue 3, 2017.
- [24] Pancholi, Vishal R., and Bhadrash P. Patel, "Enhancement of cloud computing security with secure data storage using AES", *International Journal for Innovative Research in Science and Technology*, vol. 2, Issue 9, pp. 18-21, 2016.
- [25] Li, Yibin, Keke Gai, Longfei Qiu, Meikang Qiu, and Hui Zhao, "Intelligent cryptography approach for secure distributed big data storage in cloud computing", *Information Sciences*, vol. 387, pp. 103-115, 2017.
- [26] Ramadan, Eng Hashem H., and Moussa Adamou Djamilou, "Using Cryptography Algorithms to Secure Cloud Computing Data and Services", *American Journal of Engineering Research (AJER)*, vol. 6, Issue 10, e-ISSN: 2320-0847, pp-334-337.
- [27] Bhardwaj, Akashdeep, G. V. B. Subrahmanyam, Vinay Avasthi, and Hanumat Sastry, "Security algorithms for cloud computing", *Procedia Computer Science*, vol. 85, pp. 535-542, 2016.
- [28] Ainapure, Bharati S., Deven Shah, and A. Ananda Rao, "Understanding perception of cache-based side-channel attack on cloud environment", *Progress in Intelligent Computing Techniques: Theory, Practice, and Applications*, pp. 9-21, Springer, Singapore, 2018.
- [29] Verma, Priyanka, Sumit Dhariwal, and Harshvardhan Tiwari, "WIDPS: Wormhole Attack Intrusion Detection and Prevention Security Scheme in MANET", *International Journal of Computer Applications*, vol. 105, Issue 10, ISSN: 0975 – 8887, November 2014.

Relevance of spiritual quotient on reduction of job burnout of managers in IT companies

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Dr Priyanka Mishra**

Abstract

This research paper investigated spiritual quotient and reduction of job burnout of managers of IT Companies. There were 171 managers who participated in this study. The data were collected from Spiritual Quotient Questionnaire (SQQ) and reduction of Job Burnout Questionnaire (JBQ). Regression analysis was used to predict the reduction of job burnout from spiritual quotient. The result showed that spiritual quotient has a strong relationship between spiritual quotient and reduction of job burnout of managers in IT companies. Findings were discussed with the help of existing literature and the results of analyzed data. It was therefore recommended that the IT companies should give due concentration to the findings of the study and there should be given proper attention on spiritual quotient of the managers. This study suggests that the future direction of research should focus on stress management, emotional intelligence, and work culture among the employees of IT Companies and also this study can be linked to the other sectors.

Keywords: *Spiritual quotient, Job burnout, IT Companies, Managers*

Introduction

In today's world and work life, stress is an important phenomenon, which is existing in the society and workplace. To achieve the expectations of job performance, employees are working for more time in the organization. The employees of IT companies face particularly stressful work situations. There are multiple and challenging tasks to face by IT professionals in daily work life. These stressful situations can wear on individuals over time, causing them to become tired and frustrated or suffer other adverse reactions. However, modifying the manner in which an individual views and reacts to stressful situations may help alleviate some problems that are commonly related to stress. The term which can be handled stress effectively and efficiently is Spiritual Quotient (SQ). **Spiritual Quotient** is the key to personal fulfillment and sustainable lifelong performance at extraordinary levels. It is the science of human energy management that allows access to a full range of human capabilities required to succeed in life and prosper in the current economic environment and social climate (*Danah Zohar and Cindy Wigglesworth*)

SQ has **nothing to do with religion** and is not belief or faith-based- it is the new secular scientific paradigm of spirituality. The main disciplines that have contributed to the research on SQ are neuroscience, cognitive psychology, transpersonal psychology and philosophy.

The impact of spiritual quotient of employees relates to the duty of employees and job satisfaction. The spiritual quotient also positively impacts on job involvement. This research

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also supports that spiritual orientation of employees, which will help the reduction of job burnout among the managers of IT companies.

Theoretical Background

Human beings' personality is guided by three needs: the need of body (eating, sleeping, mating and defending), the need of mind (seeking positive relationship and reject negative ones) and the need of intellect (seeking knowledge). *The power to control the three is called Spiritual Quotient (SQ)*. Spiritual Quotient (SQ) is described as a measure that looks at a person's spiritual intelligence in the same manner as IQ looks at cognitive intelligence. IQ and EQ are the part of SQ. According to Zohar, spiritual intelligence is about the human need and talent for finding meaning in experiences cannot be measured and quantified whereas EQ & IQ may be assessed.

Burnout is a prolonged response to chronic emotional and interpersonal stressors on the job, and is defined by the three dimensions of exhaustion, cynicism, and inefficacy. Job Burnout is defined as a psychological response to job stress. The job burnout aspects are: "(a) emotional exhaustion which means energy discharge and consumption of emotional resources. This dimension can be considered as the cornerstone of job burnout (b) Depersonalization which separates workers from others and causes pessimism to colleagues, customers and organization. This dimension of the job burnout is prevalent among those staffs who regularly communicate to other persons (c) Diminished personal accomplishment by which the person comes to a negative self-assessment" (Maslach & Leiter, 2005; Maslach & Jackson, 1981; Pines & Maslach, 1980).

The Indian IT market currently focuses on providing low-cost solutions in the services business of global IT. The presence of Indian companies in the product development business of global IT is very meager, however, this number is slowly on the rise. The other prominent trend is that IT jobs, once confined According to Google estimates, the Indian community of developers will be the largest in the world by to Bangalore, are slowly starting to experience a geographical diffusion into other cities like Chennai, Hyderabad and Pune. In the contemporary world economy India is the second-largest exporter of IT. Exports dominate the Indian IT industry and constitute about 77% of the industry's total revenue. There is also a growth in domestic market in the IT sector. The industry's share of total Indian exports (merchandise plus services) increased from less than 4% in FY1998 to about 25% in FY 2012. The technologically-inclined services sector in India accounts for 40% of the country's GDP and 30% of export earnings as of 2006, while employing only 25% of its workforce, according to Sharma (2006)

Empirical Evidence

This chapter provides an integrated discussion of the empirical evidence obtained through the various data analysis procedures aimed at meeting the objectives of the study.

In a study of nursing industry, it is evident that occupational stress and burnout is a prevalent problem for individuals employed in the nursing industry. However, it is clear that attention to the relationship that these individuals are involved in, whether personal or professional, would significantly impact on the stress and burnout that they experience, which will have a direct effect on the level of care they are capable of delivering to the patients.

Schaufeli (2003) attributes the lack of empirical evidence to methodological constraints relating to, amongst other factors, the stability of the burnout construct over time.

Work related stress is still a major challenge to employee health in the workplace. Negative influences from stress include anger, irritation, fear, and withdrawal. Such negative emotional responses from employees may override the rational behavior of others causing these individuals to question the employees about their loyalty and ability to commit to and perform in the organization. Although it has been noticed that spiritual practices like mindful meditation, nonattachment and compassion can be used to reduce stress in the workplace, relatively limited research has been conducted on the effects of spiritual quotient on employee stress management in the workplace. The intent of the current qualitative phenomenological research study was to explore the lived experiences of employees to better understand work related stress and the effect of using spiritual practices in attempting to manage stress in the workplace.

Objectives of the Study

The present study is carried out with the objective to find role of spiritual quotient and its effect on reduction of job burnout among the managers working in IT companies of Pune.

Hypothesis

Null Hypothesis:-There is no any relationship between Spiritual Quotient and Reduction of Job Burnout.

Alternative Hypothesis:-There is a relationship between Spiritual Quotient and Reduction of Job Burnout

Method

Research Design

The current research study was quantitative in nature. Creswell (2002) stated that quantitative studies are used examine or investigate relationships between variables. The quantitative regression analysis was used to determine whether, in the first instance, a relationship exists between spiritual quotient and reduction in the job burnout or not. This study adopted a field survey using structured questionnaire in which Spiritual Quotient as an independent variable and Reduction of Job burnout as dependent variable

Sample

Respondents were 171 managers from seven different IT companies situated in Pune, Maharashtra. There were 100 male (58.48%) and 71 female (41.52%). The average age of the respondents was 48 years with a standard deviation of 2.5 years. The educational qualification shows that 63 (36.84%) of the respondents have master degree and 106(61.98%) have bachelor's degree.

Sampling Technique

The sampling technique adopted for the study for the data collection was a two – stage sampling technique. The sampling technique used to select IT companies situated in Pune was purposive sampling and convenience sampling subsequently used to administer questionnaire to the project leaders.

Research Instruments

I Spiritual Quotient (SQ)

The Spiritual Quotient data was collected on a 5 point Likert scale ranging from 1-5 where 1 = strongly disagree, 2= Disagree, 3=Neutral, 4 =agree and 5 = strongly agree.

Reliability

The coefficient of alpha value for all the components of spiritual quotient is from 0.71 to 0.82. The calculated alpha value is greater than the recommended value of 0.7

Validity

The significant value of all the components of spiritual quotient was less than 0.05 (0.000 < 0.05) and also based on the count value obtained for all components were ranges from 0.445 to 0.650 is greater than the r product moment value 0.087 for infinite degree of freedom at 5% level of significance. So it can be concluded that all the components were valid to measure stress management.

II Job Burnout (JB)

The concept of job burnout in this study is based on Maslach and Jackson (1986), who proposed that it includes the following three dimensions: exhaustion, cynicism, and professional efficacy decrease. The data on all the three components were collected on the five point scale a 5 point Likert scale ranging from 1-5 where 1 = Strongly Disagree, 2= Disagree, 3=Neutral, 4 =Agree and 5 = Strongly Agree

Reliability

The cronbach alpha value for all the three dimensions: exhaustion, cynicism, and professional efficacy decrease. The alpha value of all three dimensions for the collected data is 0.74 is above the recommended value 0.7.

Validity

The significant value of all the items with the average value is less than 0.05 and also the count value obtained for all the items with the average value ranges from 0.301 to 0.702 is greater than the r product moment value 0.087 for infinite degree of freedom at 5% level of significance. So it can be concluded that all the items of job burnout were valid.

Data Analysis

The data analysis for any research study depends on the variables and other unique factors with the survey design that the research wants to discover and are being used for the research study (Hall, 2010). An efficient and effective method for analyzing data between two or more variables in a specific area is by conducting correlational studies (Nagy, 2008). In the current research study, the methods used for data analysis were guided by the principles outlined in Nagy (2008). A regression analysis is done to understand the impact of spiritual quotient on reduction of job burnout.

Statistical Analysis

Regression showing impact of Spiritual Quotient and reduction of Job Burnout

Model	SS	df	Mean Sq	F	P-Value	R	R ²
Regression	9.324	1	9.324	49.378	.000 ^b	0.705 ^a	0.497
Residual	9.442	169	0.189				
Total	18.766	170					

a. Dependent Variable: reduction of burnout, b. Predictors: (Constant), Spiritual Quotient [$F(1,169) = 49.378, p < 0.05, R = 0.705, R^2 = 0.497, \beta = 0.579, t = 12.347, p < 0.05.$]

Interpretation

As the p-value is 0.000, which is less than 0.05, So Null hypotheses is rejected, and Alternative hypothesis is accepted. It means that there is a significant relationship between spiritual quotient and reduction of job burnout. The adjusted R –square value is 0.487, which means that spiritual quotient explain 48.7% to the dependent variable job burnout.

Conclusion and Recommendations

The concept of Spiritual quotient of an individual has continued to evolve from decision making studies and literature to provide a context for continued interest and research in this area. This study provided evidence and confirmed the relationship between spiritual Quotient and reduction of job burnout. This study suggests that the future direction of research should focus on stress management, emotional intelligence, and work culture among the employees of IT Companies and also this study can be linked to the other sectors.

References

1. Wigglesworth, Cindy (2012). The twenty one skills of spiritual intelligence. Select books, Inc, New York.
2. Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Occupational Behavior*, 2, 99-113.
3. Pines. A. and Maslach. C. (1980). 'Combatting staff burn-out in a day care center: A case study'. *Child Care Quarterly*. 9(1). 5-16.
4. Leiter, M. P., & Maslach, C. (2005). A mediation model of job burnout. In A. S. G. Antoniou & C. L. Cooper (Eds.), *Research companion to organizational health psychology* (pp. 544 –564). Cheltenham, United Kingdom: Edward Elgar.
5. Schaufeli, W. B., & Bakker, A. B. (2003). Test manual for the Utrecht Work Engagement Scale. Unpublished manuscript, Utrecht University, the Netherlands. Retrieved from <http://www.schaufeli.com>
6. B. H. Hall 2010. 1. The Internationalization of R&D. Bronwyn H. Hall. UC Berkeley and University of Maastricht. March 2010 (revised August 2010).
7. Creswell, J. W. (2002). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: Sage.
8. Maslach, C., & Jackson, S. E. (1986). *Maslach burnout inventory manual* (2nd ed.). Palo Alto, CA: Consulting Psychologists Press.
9. Rosemary Nagy (2008) *Transitional Justice as Global Project: critical reflections*, *Third World Quarterly*, 29:2,275 289, DOI: 10.1080/01436590701806848

Customer Relationship Marketing and Customer Satisfaction: A Study on Insurance Companies in Madurai

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Abstract

Relationship marketing strategy helps in understanding customers' needs, and can also lead to customer loyalty and cost reduction. Research has shown that the cost of serving one loyal customer is significantly less than the cost of attracting and serving one new customer. Therefore, to survive in the market, insurance companies need to implement CRM in their organizations. This is the key to success in the industry. The organizations can succeed who have been able to build a base of their loyal customers, because a loyal customer advocates the companies' products much better than the organization itself. The aim of the study is examining the relationship between customer relationship marketing and customer satisfaction of insurance companies in Madurai.

Keywords: CMR, satisfaction, insurance.

Introduction

Customer relationship marketing plays a vital role. The major goals of customer relationship marketing can be expressed simply as understanding and treating customers better for increased loyalty and profit. In a competitive marketplace where businesses compete for customers, customer satisfaction is seen as a key differentiator and increasingly has become a key element of business strategy. The concept of customer relationship marketing occupies a central position in marketing thought and practice. Satisfaction is a major outcome of marketing activity and serves to link processes culminating in purchase and consumption with post purchase phenomena. Therefore, to survive in the market, insurance companies need to implement customer relationship marketing in their organizations. Research has shown that the cost of serving one loyal customer is significantly less than the cost of attracting and serving one new customer. The purpose of the study is examining the relationship between customer relationship marketing and customer satisfaction.

Objective of the Study

The main objective of the study is to examine the relationship between the customer relationships marketing and customer satisfaction with insurance companies in Madurai.

1. To find out the socio-economic profile of insurance investors in the study area.
2. To reveal the relationship of insurance investors demographic factors and their satisfaction level with insurance companies in Madurai.
3. To study the impact of relationship marketing on customer satisfaction.

Research Methodology

This study used a descriptive research, data are gathered through interviews and questionnaires; questions and answers are based on the Likert scale. In the study examining satisfaction of investors in insurance companies in Madurai, 250 questionnaires are

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distributed among the statistical community and obtained responses are analyzed by SPSS software. Convenience sampling technique is used for the study.

Data Analysis

Before analyzing the data provided by the samples, it is advisable to obtain some insights into the demographic characteristics of respondents participating in this study since it provides a background for the analysis. Only a few demographic characteristics such as gender, age, marital status, education, and monthly income were used in this study, all of which were expected to be important in the interpretation of the results.

TABLE: 1 DEMOGRAPHIC PROFILE OF THE RESPONDENTS (n = 250)

DEMOGRAPHIC PROFILE	CATEGORY	FREQUENCY	PERCENT
Gender	Male	151	60.4
	Female	99	39.4
Age	Upto 25 years	49	19.6
	25-35	49	19.6
	35-45	71	28.4
	45-55	47	18.8
	Above 55	34	13.6
Educational Qualification	Not formally educated	19	7.6
	High school Level	20	8
	Higher Secondary Level	35	14
	Graduate	78	31.2
	Post Graduate	98	39.2
Marital Status	Single	55	22
	Married	195	78
Monthly Income	Under Rs.15,000	33	13.2
	Rs.15,000 - 25,000	55	22
	Rs.25,000 - 35,000	61	24.4
	Rs.35,000 - 45,000	57	22.8
	Above Rs.45,000	44	17.6
Total		250	100

Source: Primary Data

Table 1 discussed the demographic profile of the insurance investors in Madurai. The sample consisted of more male respondents (60.47%) as compared to female respondents (39.4%). Respondents spanned the range of age categories 19.6 per cent of the respondents fall in the age upto 25 years, 19.6 per cent belong to the age group of 25-35 years, 28.4 per cent are in the age group of 35-45 and 13.6 per cent are in the age group of above 55 years. Respondents were also asked to provide information regarding their education, majority per cent (39.2) of them are completed post graduate level education. Just 13.2 percent of respondents are getting monthly salary below Rs.15,000. The analysis revealed that majority (78 percent) of the respondents belongs to the married group.

TABLE: 2 DEMOGRAPHIC PROFILES AND LEVEL OF SATISFACTION OF THE RESPONDENTS - CHI SQUARE TEST

Demographic Profile	Characteristic	Level of Satisfaction			Total	Chi-square value	P Value	Remarks
		Low	Medium	High				
Gender	Male	48	62	41	151	10.319	.000	Significant
	Female	30	32	37	99			
	Total	78	94	78	250			
Age	Upto 25 years	30	10	11	49	9.101	.000	Significant
	25-35	20	14	15	49			
	35-45	32	21	18	71			
	45-55	21	22	14	47			
	Above 55	10	11	13	34			
	Total	101	78	71	250			
Educational Qualification	Not Formally Educated	5	5	9	19	9.119	.000	Significant
	High school	9	6	5	20			
	Higher Secondary	14	11	10	35			
	Graduate	32	32	14	78			
	Post Graduate	40	21	37	98			
	Total	100	75	75	250			
Marital Status	Single	10	24	21	55	8.329	.000	Significant
	Married	42	91	62	195			
	Total	52	115	83	250			
Monthly Income	Under Rs.15,000	10	10	13	33	9.319	.000	Significant
	Rs.15,000 - 25,000	15	25	15	55			
	Rs.25,000 - 35,000	22	21	18	61			
	Rs.35,000 - 45,000	21	22	14	57			
	Above Rs.45,000	10	21	13	44			
	Total	78	99	73	250			

Source: Primary Data

Table 2 shows the significant association between demographic profile and level of satisfaction towards the insurance providers in the study area of Madurai. From the chi-square test it is learnt that the null hypothesis is rejected for all the demographic profile significant level of 0.000(P value) has been obtained. Hence, the null hypothesis is rejected

at 5 per cent level of significance and there is association between demographic profile and level of satisfaction towards insurance providers.

TABLE: 3 PEARSON'S CORRELATION BETWEEN CRM AND INVESTORS' SATISFACTION

Variable	Mean	Std.Dev	N	R	P	Remarks
CRM	3.800245	.31745621	250	.611**	.000	Significant
Satisfaction	3.810115	.3209061				

Source: Primary Data **Sig.at.01 level

Table 3 shows that Pearson's Correlation between CRM and Consumer Satisfaction. There is a significant relationship between relationship marketing and consumer satisfaction. ($r = .611^{**}$, $N = 250$, $P < .01$). By implication, it can be assumed that a 1% shift in relationship marketing will result in 61.1% shift in consumer satisfaction. Hence, it could be deduced that relationship marketing influence consumer satisfaction.

Conclusion

“The business of business is getting and keeping customers”. - Drucker

With the acceleration of global economic integration process, the markets today have changed from the production and sales-oriented marketing to customer-oriented marketing. Insurance company as an industry that needs to contact customers frequently should pay more attention to customer relationship marketing. High quality CRM and satisfaction will relate to corporation's revenues, profits and market share closely.

References

1. Anderson, E. W. and Mittal, V., (2000). Strengthening the satisfaction-profit chain. *Journal of Service Research*, 3(2), 107-120.
2. Bennett, R. and Rundle-Thiele, S. (2004), “Customer satisfaction should not be the only goal”, *Journal of Services Marketing*, Vol. 18 No. 7, pp. 514-523.
3. Dr.S.Shyam Sundar, B.L.Saroj “Weird and Wacky Madurai of Tourists' Problems”, *Pacific Business Review International*, ISSN: 0974-438X, Vol. 11, Issues. 4, July. 2018, pp.25-29.
4. Zeithaml, VA. and Bitner, MJ. (2003), *Service Marketing: Integrating Customer Focus Across the Firm*, 3rd Edition. New York: Irwin McGraw-Hill.

Accomplish 2030 Health Agenda through Mobile Services: Indian Scenario

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Abstract

Despite a significant progress on Millennium Development Goals (MDGs 4&5), mortality of under-five year's children is still high and women die during their pregnancy. The unfinished targets are included in the Sustainable Development Health Goal (SDG3) to reduce child and maternal mortality globally. This study is focused on the impact of new technologies specifically mobile applications on the healthcare services. This paper provides econometric evidence that child & maternal mortality relates to mobile subscribers, internet users, total health expenditure, public health expenditure, improved sanitation facilities, female education and gross domestic per capita product.

Methodology: Before running a regression equation in the STATA, we have checked the stationarity of the series by applying Augmented Dickey Fuller (ADF) test to avoid biases in the model. Data is extracted from the World Bank dataset on the various health indicators that determine the relationship between mHealth and mortality and also on mobile phone users and internet users that represents mHealth services, covering the period from 1995 to 2015. STATA software is used to run the regression analysis. On the basis of several empirical evidences and literature review, factors affecting the mortality rates were identified and the linear regression model is developed to analyze the effectiveness of mHealth interventions in MCH sector of the Indian economy.

Results: The results imply that mobile phone has a favorable impact on maternal mortality; this outcome can benefit the policymakers in policies formulation aiming to reduce child and maternal mortality in a developing country like India. The pilot studies such as Kilkari, mSakhi, Mobile Academy in India proves the significance of the usage of mobile phone with respect to child/maternal mortality reduction.

Conclusion: There is a need to tap the potential market of mHealth services for healthcare deliveries in India to make affordable access of medical services and health information on safe pregnancy, child nutrition & safety. Government should take bold initiatives to implement these services at reasonable rates and improve infrastructure facilities to facilitate mobile services in each and every corner of India.

Keywords: mHealth, Child Mortality, Maternal Mortality, Regression, Indian Economy

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Introduction

Since globalization both developed and developing countries have made advances in the reduction of both maternal mortality (fell by 45% worldwide) and child mortality (declined by 50%) (UNDP, Good Health and Well being, 2015) Health conditions have been improved in developing countries like India as maternal mortality ratio improved from 600 per 100,000 live births to just over 174 in 2015 (Table 1). In addition, 74% of the births in India are attended by skilled health personnel in 2015, however India still accounts for nearly 20% of maternal deaths globally.

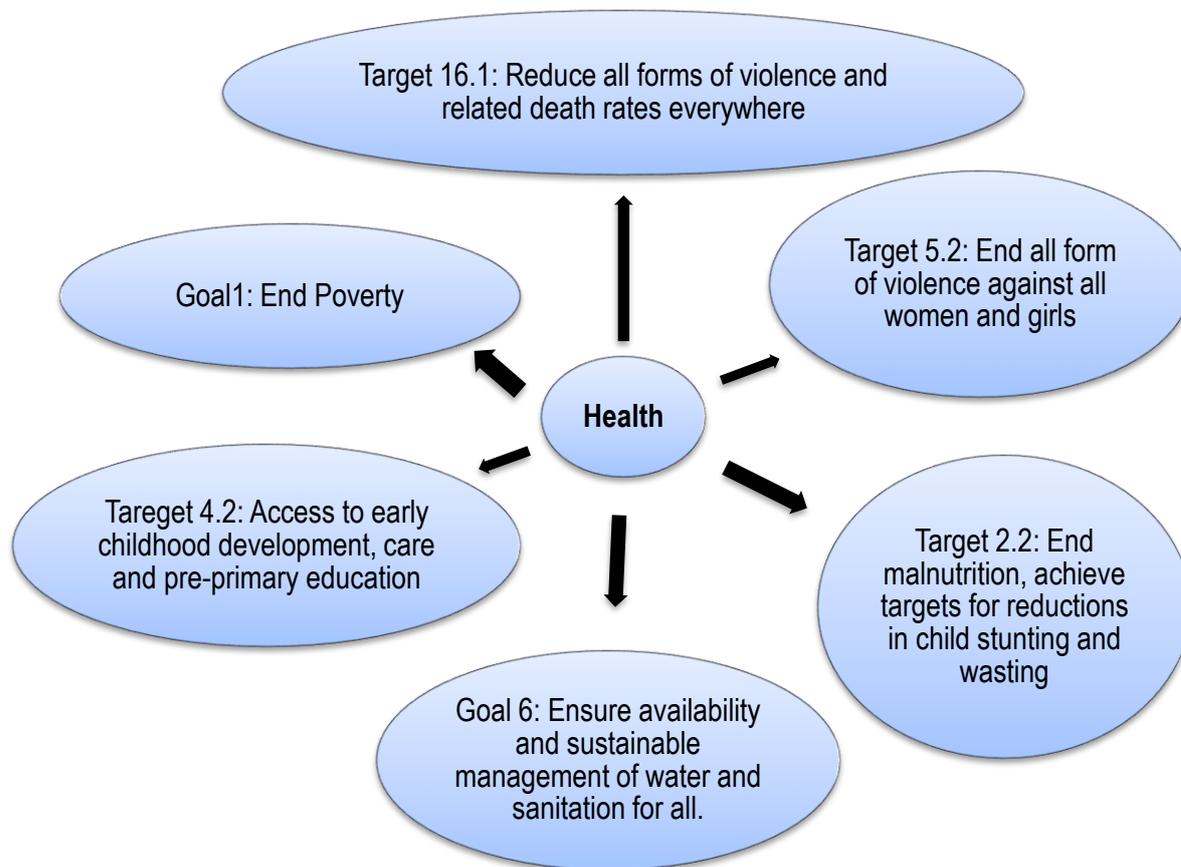
Health Indicators	2000	2015
Health expenditure (% of GDP)	4.2%	4.7%
Life expectancy at birth	62.5 years	68.3 years
Healthy life expectancy	54.2 years	59.6 years
Maternal Mortality Rate (per 100,000 live births)	600	174
Under- five Mortality Rate (per 1000 births)	91.5	47.7
Births attended by skilled health personnel (%)		74

Source: (WHO, Global Health Observatory (GHO) data)

Despite this significant progress, mortality of under-five years children is still high and women die during their pregnancy. People are fighting against preventable disease like tuberculosis and measles as deaths can be controlled by immunization, health awareness, treatment, accessible reproductive healthcare. Both the public and private sectors are taking initiatives to fight against mortality and new technologies such as electronic health (eHealth), mobile health (mHealth) are emerging opportunities in this direction. These ICT (Information and Communication Technology) tools facilitate easy and affordable access to healthcare services even in remote areas.

Health is centrally placed in the 2030 health agenda and framed as a contributor to many other SDGs (Figure 1). The agenda was adopted by the UN General Assembly in September 2015 (replace the MDGs) and came into force in January 2016 to achieve “integrated and indivisible” 17 Sustainable Development Goals (SDGs) and 169 targets for social, environmental and economic development. The potential priority areas for health includes universal health coverage (UHC), focus on health equity, target risks and implement inter-sectoral actions with a close monitor of progress (WHO, 2015).

Figure 1: Health is linked to other SDGs



Source: (WHO, 2016)

Determinants of health and risk factors are been identified by the WHO to promote healthy lives and well-being; risk factors are food security & nutrition, water & sanitation, energy, climate change. Major determinants of health which effects indirectly are poverty, education, gender equality, economic growth, employment, infrastructure, innovation. This paper addresses the various health issues (child mortality, maternal mortality) in developing countries by accessing the global health condition and sustainable health goal (SDG3). It is focused on the innovation and digitization in healthcare deliveries to make health services accessible. With the help of simple regression, this paper has quantified the relation between mHealth and mortality in India. In the conclusion, it provides some recommendations to the policy makers that how mHealth could reduce the mortality and would help to achieve SDG3.

Sustainable Health Goal (SDG3) and mHealth

There are 13 broad targets in the health goal (SDG3: To ensure healthy lives and promote well-being for all at all ages) that focused on the acceleration of sustained improvements in health of the nation (Table 2). It can be categorized into three dimensions covering a wide spectrum of health aspects: “the unfinished and expanded MDGs agenda, the new SDG-3 targets and the means of implementation, with Universal Health Coverage (UHC) being the overarching umbrella” (WHO, May 2016).

MDG unfinished	3.1: Reduce maternal mortality	3.2: End preventable newborn and child deaths and 3.7: Ensure universal access to sexual and reproductive health-care services
New SDG3 targets	3.4: Reduce mortality from NCD and promote mental health	
SDG3 means of Implementation targets	3.b: Provide access to medicines and vaccines for all, support R&D of vaccines and medicines for all	3.d: Strengthen capacity for early warning, risk reduction and management of health risks

Source: (WHO, 2016)

The paper is focused on the maternal and child health, the impact indicators show that accelerates reduction in newborn, child and maternal mortality are priority potential area under SDG3 (Table 3). Although, there are some bottlenecks such as lack of quantum care, human resources, infrastructure. Hence to overcome these bottlenecks, new technologies/digitization are adapting by the countries in the maternal and child healthcare sector. There are certain risk factors or determinants of child and maternal mortality (Table 3) and the model of this study is specified on the basis of these determinants.

Risk factors/ determinants	2.2	Child stunting, child wasting, child overweight
	6.1	Access to safely managed drinking-water source
	6.2	Access to safely managed sanitation
	7.1	Clean household energy
	11.6	Ambient air pollution
	Other	Part of targets in goals on poverty, education, gender etc

Source: (WHO, Health in the Sustainable Development Goals, 2016)

The provision of health-related services via mobile technology is called mHealth, abbreviated version for mobile Health (United, 2009). The benefits of mHealth services can be achieved by using mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants (PDAs), and other wireless devices. It involves the use and capitalization on a mobile phone's core utility of voice and short messaging service (SMS) as well as more complex functionalities and applications including general packet radio service (GPRS), third and fourth generation mobile telecommunications (3G and 4G systems), global positioning system (GPS), and Bluetooth technology (WHO, 2011). Dr. Henk Bekedam, WHO Representative to India placed health as a priority in the national and state agenda with a need to increase government health budget and implementation of universal health coverage. Further he added, it is necessary to strengthen health infrastructure in rural areas of India and requires a strong monitoring and evaluation system in the healthcare (WHO, May 2016).

David Levy, global health care leader at PwC, stated "mHealth is the future of health care, deeply integrated into delivery that will be better, faster, less expensive and far more customer-focused." Further he added that "despite demand and the obvious potential benefits of mHealth, rapid adoption is not yet occurring, the main barriers are not the technology but rather systemic to health care and inherent resistance to change" (UPENN, 2012).

According to the International Telecommunications (ITU), it is estimated that there were almost 7 billion mobile-cellular telephones in use worldwide by the end of 2016, equivalent to about 95 per cent of the world population. The ubiquity of mobile technology offers a tremendous opportunity in the healthcare sector to access health facilities at reasonable rates. According to the (UNDP, Human Development Report India, 2017), total mobile phones subscriptions in India are 78.8 per 100 people with 26 per cent of the total population are internet users.

Model Specification

Simple regression model is used to quantify the relationship between mHealth services in healthcare deliveries and mortality rates (child and maternal) for the purpose of our study. Further as mentioned above, we have used number of mobile phone users is considered as a proxy variable for mHealth services to analyze the effectiveness of these interventions.

The data for the regression analysis was extracted from the World Bank dataset on the various health indicators that determine the relationship between mHealth and mortality and also on mobile phone users and internet users that represents mHealth services, covering the period from 1995 to 2015. STATA software is used to run the regression analysis. On the basis of several empirical evidences and literature review, factors affecting the mortality rates were identified and the following linear regression model is developed to analyze the effectiveness of mHealth interventions in MCH sector of the Indian economy.

The linear regression model used in the study is as follows:

$$\text{Mortality Rate (IMR, U5MR, MMR)} = F(\text{MOSUB, NETU, HPUB, HGDP, FEDU, SANS, GDPPC})$$

where,

IMR=Infant mortality rate

U5MR=Under-five mortality rate

MMR=Maternal mortality rate

MOSUB= mobile subscribers

NETU= Internet users

HPUB= Public health expenditure

HGDP= Total health expenditure

FEDU= Female education

SANS=Improved sanitation facilities

GDPPC=Per capita gross domestic product

To include both the child and maternal mortality; infant mortality and under five mortality are inserted as dependent variables for child mortality, while maternal mortality rates are injected as dependent variable to calculate maternal mortality. Mortality rates (infant, under-five and maternal mortality) are considered as a function of the mobile users, internet users, public health expenditure, total health expenditure, female enrollment, improved sanitation facilities and per capita GDP (Table 4 details the variables descriptions).

Table 4 Variables Description

Variable	Description
Infant Mortality Rate (IMR)	Deaths per 1,000 live births under age one
Under five Mortality Rate (U5MR)	Probability of deaths per 1,000 live births under age five
Maternal Mortality Rate (MMR)	Probability of women deaths per 100,000 live births while pregnant or within 42 days of pregnancy termination
Mobile Users (MOSUB)	Mobile-cellular subscription per 100 people
Internet Users (NETU)	Internet users per 100 people
Public Health Expenditure (HPUB)	Percentage of domestic public health expenditure of current health expenditure
Total Health Expenditure (HGDP)	Percentage of current health expenditure of GDP
Improved sanitation facilities(SANS)	Percentage of people using at least basic sanitation facilities
Female Education Rate (FEDU)	Primary completion rate for Females (% of relevant age group)
Gross Domestic Product Per Capita (GDPPC)	Gross Domestic Product Per Capita in constant 2011 USD

Source: World Development Indicators and UN data

After setting up the regression equation, the next step was to calculate the t-statistics* or the p value† to test the null hypothesis. The model is build up on the following hypothesis:

- i. *Null Hypothesis (H₀): There is an impact of mobile phones on mortality (child/maternal) reduction in India*
- ii. *Alternate Hypothesis (H₁): There is not an impact of mobile phones on mortality (child/maternal) reduction in India*

Using the regression analysis on a dataset of the Indian economy, the study offers econometric evidence on the relationship between mobile phone and mortality reduction in India. The study used the three ‘dependent variables’ (MMR, IMR and U5MR) to illustrate both maternal and child mortality rates and seven independent variables are used as determinants of mortality rates (Equation 1, 2 and 3).

For child mortality, both under-five mortality and infant mortality have been considered as the ‘dependent variables’ in the model. These seven variables are identified to capture the impact on mortality rates. Also, the number of mobile users is considered as a proxy for mHealth applications. Three Regression equations are included in the model as follows:

$$IMR = a + b1MOSUB + b2NETU + b3HPUB + b4HGDP + b5FEDU + b6SANS + b7GDPPC + \mu \dots \dots \dots (1)$$

where,

Infant Mortality Rate (IMR) is a dependent variable.

* t-statistics is calculated from the sample data, this statistic functions as a decision-maker.

† Also called the observed significance level, this is the probability of observing a value of the test statistic at least as contradictory to the null hypothesis as the observed test statistic value, assuming the null hypothesis is true.

$$U5MR = a + b1MOSUB + b2NETU + b3HPUB + b4HGDP + b5FEDU + b6SANS + b7GDPPC + \mu \dots \dots \dots (2)$$

where,

Under-five Mortality Rate (U5MR) is a dependent variable.

$$MMR = a + b1MOSUB + b2NETU + b3HPUB + b4HGDP + b5FEDU + b6SANS + b7GDPPC + \mu \dots \dots \dots (3)$$

where,

Maternal Mortality Rate (MMR) is a dependent variable.

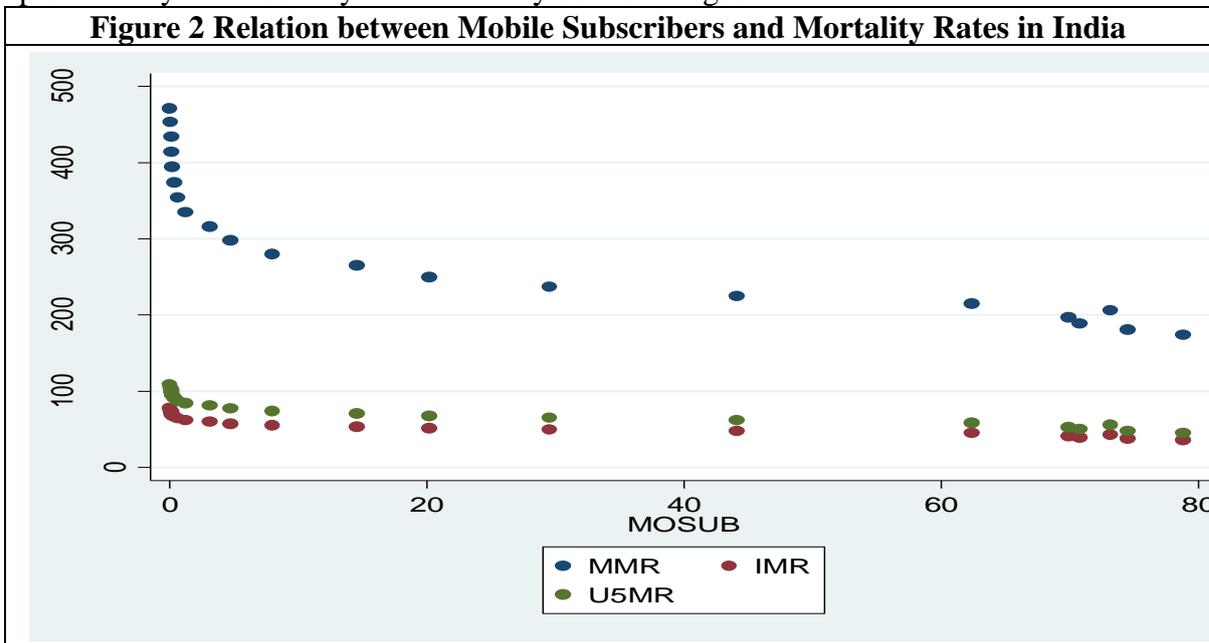
Also, the model is build up on the following hypothesis:

- i. Null Hypothesis (H0): Mobile phone has impact on mortality rates.
- ii. Alternate Hypothesis (Ha): No relationship between mobile phone and mortality.

Outcome: If p-value is greater than 0.05 then the study do not reject the null hypothesis.

Graphically, the study shows a two way relationship between the two variables; number of mobile subscribers and mortality rates in India (Figure 2). It represents a close relationship between the two and clarifies that higher number of mobile subscribers indicates a lower mortality rate in India. The higher mobile subscriptions can therefore be assumed to indicate a higher level of health awareness, better living standards & income, higher digital literacy and accessibility in the economy.

In addition, higher mobile users facilitate quick and easy reachability to nearby clinics and doctors especially in rural areas. This in turn lowers the morality rates and increase the productivity in the society and ultimately bodes well growth.



Source: STATA Result

Before running a regression equation in the STATA, we have checked the stationarity of the series to avoid biases in the model. Several tests are available and used to check the stationarity of the time series process. However, for this study we have applied Augmented Dickey Fuller (ADF) test. By applying ADF test, we have ensured that our data series are stationary i.e. does not have unit root. The following hypothesis has been used to check the stationarity through the test:

- i. Null Hypothesis (H0): Variable is not stationary or got unit root

ii. Alternate Hypothesis (H1): Stationary or variable does not have unit root

Outcome: If the absolute t-statistics of the ADF test is greater than the critical value (5%) then we can reject the null Hypothesis. Hence, the series is stationary.

Results of Stationarity: Augmented Dickey Fuller (ADF) Test

Firstly, all the variables of the regression model were used in their original form to test the unit root of the time series data but some independent variables got unit root as the ADF test results for independent variables indicated the non-stationarity of the time series. Therefore, these independent variables were transformed into its either log form or first difference to avoid the problem of stationarity. Independent variables that were transformed into another form) log/lag/first differences are mentioned in Table 5. After converting the variables into its first difference and log form, the test is again applied over the series and ensured that these variables do not have unit roots. Table 6 illustrates the STATA results of the Augmented Dickey Fuller test that is performed to test stationarity of the data.

Independent variables	Transformation (to satisfy stationarity)
Mobile Subscribers (MOSUB)	First Difference of log mobile subscribers (DLNMOSUB)
Internet Users (NETU)	Log of Internet Users (LNNETU)
Public Health Expenditure (HPUB)	Lag Public Health Expenditure (LHUPB)
Total Health Expenditure (HGDP)	Lag Total Health Expenditure (LHGDP)
Female Education Rate (FEDU)	Lag Female Education Rate (LFEDU)
Improved Sanitation Facilities (SANS)	First Difference of Improved Sanitation Facilities (DSANS)
Per Capita Gross Domestic Product (GDPPC)	First Difference of Log Per Capita Gross Domestic Product (DLNGDPPC)

Source: Author's Calculation

Maternal Mortality Rate						
D.mmr	Coef.	S.E	t	P >abs. t	95% C.I	
mmr L1	-.0461025	.0054213	-8.50	0.000	-.0574923	-.0347127
Constant	-.8140976	1.724106	-0.47	0.642	-4.43631	-2.808115
MacKinnon approximate p-value for Z(t) = 0.0000						
Infant Mortality Rate						
D.imr	Coef.	S.E	t	P >abs. t	95% C.I	
imr L1	-.0121629	.0015809	-7.69	0.000	-.0154842	-.0088415
Constant	-1.384527	.0924227	-14.98	0.000	-1.5787	-1.190355
MacKinnon approximate p-value for Z(t) = 0.0000						
Under-Five Mortality Rate						
D.u5mr	Coef.	S.E	t	P >abs. t	95% C.I	
u5mr L1	-.0160795	.0017012	-9.45	0.000	-.0196536	-.0125053
Constant	-1.957282	.1348243	-14.52	0.000	-2.240537	-1.674027
MacKinnon approximate p-value for Z(t) = 0.0000						

First Difference of Log Mobile Users						
D.dlnmosub	Coef.	S.E	t	P >abs. t	95% C.I	
dlnmosubL1	-.6611775	.2193448	-3.01	0.007	-1.122004	-.2003511
Constant	.3048713	.1271582	2.40	0.028	.0377218	.5720208
MacKinnon approximate p-value for Z(t) = 0.0000						
Log of Internet Users						
D.lnnetu	Coef.	S.E	t	P >abs. t	95% C.I	
lnnetu L1	-.0714216	.0204433	-3.49	0.003	-.1143713	-.0284719
Constant	.3697666	.0403175	9.17	0.000	.2850627	.4544706
MacKinnon approximate p-value for Z(t) = 0.0082						
Lag Public Health Expenditure						
D.lhpub	Coef.	S.E	t	P >abs. t	95% C.I	
lhpub L1	-.944942	.0673124	-14.04	0.000	-1.08636	-.803524
Constant	24.86868	1.710602	14.54	0.000	21.27484	28.46252
MacKinnon approximate p-value for Z(t) = 0.0000						
Lag Female Education Rate						
D.lfedu	Coef.	S.E	t	P >abs. t	95% C.I	
lfedu L1	-.4778331	.0988545	-4.83	0.000	-.6855188	-.2701475
Constant	40.03164	7.554834	5.30	0.000	24.15953	55.90376
MacKinnon approximate p-value for Z(t) = 0.0000						
Lag Total Health Expenditure						
D.lhgdp	Coef.	S.E	t	P >abs. t	95% C.I	
lhgdp L1	-.9185868	.0388505	-23.64	0.000	-1.000209	-.836965
Constant	3.962045	.1618603	24.48	0.000	3.621989	4.302101
MacKinnon approximate p-value for Z(t) = 0.0000						
First Difference of Improved Sanitation Facilities						
D.dsans	Coef.	S.E	t	P >abs. t	95% C.I	
dsans L1	-.9767319	.2123581	-4.60	0.000	-1.42288	-.5305841
Constant	.9182443	.2038527	4.50	0.000	.4899657	1.346523
MacKinnon approximate p-value for Z(t) = 0.0001						
First Difference of Log Per Capita Gross Domestic Product						
D.dlmgdppc	Coef.	S.E	t	P >abs. t	95% C.I	
dlmgdppcL1	-.8668769	.2052189	-4.22	0.001	-1.298026	-.435728
Constant	.045449	.0110148	4.13	0.001	.0223078	.0685902
MacKinnon approximate p-value for Z(t) = 0.0000						

Source: Author's Calculation (STATA)

This specifies that all the variables should satisfy the condition of augmented dickey fuller test to avoid the problem of unit root/ non- stationary. After clearing the ADF test, final variables are further included in the regression model to perform an ordinary least square (OLS) estimation to check the impact of mHealth services on mortality.

On the basis of the above outcome, dependent variables (MMR, IMR, and U5MR) does not have unit root as the t-statistics of these variables are greater than the critical value (5%); MMR: -8.504 (t-statistics) is greater than -3.000 (5% critical value), IMR: -7.694 (t-statistics) is greater than -3.000 (5% critical value) and U5MR: -9.452 (t-statistics) is greater than -3.000 (5% critical value). Therefore, the study can reject the null hypothesis

(Variable is not stationary or got unit root) and includes these variables in their original form as available on the world databank for the regression model.

The results of the ADF test shows that test statistics value of all the variables are greater than 5% critical value (-3.000). The values at 1% and 10% could also be considered but it is an economics rule that averages are always preferred than extremes. Therefore, 5% is reflecting an almost true picture of the model. It can also be explained as there is 95% probability of getting the value. As the t-statistics values are negative in this test but in the ADF test absolute values are taken for the analysis. Table 7 summarizes the ADF test results to make it clearer that the transformed variables do not have unit root and series are stationary. Further, these variables are ready to use for regression analysis.

ADF Test	t-statistics	1% critical value	5% critical value	10% critical value
MMR	-8.504	-3.750	-3.000	-2.630
IMR	-7.694	-3.750	-3.000	-2.630
U5MR	-9.452	-3.750	-3.000	-2.630
DLNMOSUB	-3.014	-3.750	-3.000	-2.630
LNNETU	-3.494	-3.750	-3.000	-2.630
LHPUB	-14.038	-3.750	-3.000	-2.630
LHGDP	-23.644	-3.750	-3.000	-2.630
LFEDU	-4.834	-3.750	-3.000	-2.630
DSANS	-4.599	-3.750	-3.000	-2.630
DLNGDPPC	-4.224	-3.750	-3.000	-2.630

Source: Author's Calculation

Outcomes of the Regression Analysis

It is a necessary condition to choose the level of significance[‡] (denoted by α) in order to decide the rejection or acceptance of null hypothesis. If the t-statistics falls under the rejection region[§] then the model rejects the null hypothesis. Hence, the decision to reject or accept Null hypothesis (H0) is based on the value of the test statistic, α , the rejection region, and/or the p-value of the model. Generally, 5 percent level of significance or 95% of confidence interval^{**} is considered as a good percentage to validate the statistical results. In case of maternal mortality rate as dependent variable, Table 8 shows the STATA results of regression analysis that the p-value of the independent variable (dlnmosub) is 0.895 (greater than 0.05). This implies that the mobile phones have an impact on reduction in maternal mortality rates in India as the study does not reject the null hypothesis of the regression model. While, internet users do not have any impact on the reduction in maternal mortality rates in a developing country like India. Further, other socio economic health indicators such as public health expenditure, improved sanitation facilities and per capita gross domestic product plays a significant role in reducing the maternal mortality rate in India.

[‡] This is the probability of a Type I error (i.e., the probability of rejecting H0 given that H0 is true).

[§] Rejection region contains those values of the test statistic that lead the researcher to reject H0 and accept Ha.

^{**} It is a interval estimation that is computed from the observed data and there is 95% chances that the this interval might contain the true value of an unknown population parameter.

Table 8 MMR as a dependent variable

MMR	Coef.	Std. Err	t	P> t	[95% Conf. Interval]	
Innetu	-40.73099	3.277511	-12.43	0.000	-47.81162	-33.65036
lhpub	-.9400205	1.501229	-0.63	0.542	-4.183228	2.303187
dlnmosub	-1.29529	9.622996	-0.13	0.895	-22.08451	19.49393
lhgdp	32.44916	9.207544	3.52	0.004	12.55747	52.34085
lfedu	-1.280153	.4101568	-3.12	0.008	-2.166243	-.3940632
dsans	-12.32803	10.73802	-1.15	0.272	-35.52611	10.87006
dlngdppc	-122.2963	130.8603	-0.93	0.367	-405.0027	160.4101
cons	321.9893	15.48501	20.79	0.000	288.536	355.4426
Root MSE	R sq.	Adj. R sq.	SS		MS	
9.5404	0.9936	0.9902	Model	Residual	Model	Residual
F(7, 13) = 288.80			184002.56	1183.24975	26286.08	91.0192114

Source: Author's Calculation (STATA)

Recently, the Sample registration system (SRS) figures on maternal mortality rates revealed that out of total 62, 96,101 registered pregnant women 556 died in 2014-2016. India has achieved the MDG target of maternal mortality rate of less than 139 per 100,000 live births by reducing 22% maternal mortality rate in

2014-2016 (MMR declined from 167 in 2011-13 to 130 per 100,000 live births in 2014-2016 (NDTV, 2018) and hopeful to achieve the SDG target of MMR less than 70 per 100,000 live births.

The most significant declined was registered in the Empowered Action Group (EAG) states (declined from 246 per 100,000 live births to 188). EAG states comprise Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Odisha, Rajasthan, Uttar Pradesh, Uttarakhand, and Assam. Maternal mortality rates declined from 93 to 77 per 100,000 live births in southern states (Andhra Pradesh, Telangana, Karnataka, Kerala and Tamil Nadu) and from 115 to 93 per 100,000 live births in other states of India. A developing country like India has achieved the MDG target of maternal mortality rate due to timely access to health information facilitated by various mobile health interventions across the country. Dr. Ajay Khara, deputy commissioner, Health Ministry commented that major factor contributed to this achievement is higher rate of institutional deliveries (80% of women are now giving births in hospitals as compared to only 40% earlier) (Kaul, 2018).

In case of Infant mortality rate, Indian ranked 12th among 52 low and middle income countries having the highest mortality rate in 2016 with 6 lakh children dying within a month of birth (The Economic Times, 2018). India ranks below many developing countries like Bangladesh (54), Sri Lanka (127), Bhutan (60 and Nepal (50) in term of neonatal mortality rate; 25.4 per 1000 live births (The Economic Times, 2018). This generates a need to introduce mobile health intervention in child healthcare. Results of regression analysis demonstrate that mobile phones have a positive impact on child mortality rates. Table 9 and 10 describes the outcomes of regression results by using child mortality rate (infant mortality rate and under five mortality rate) as a dependent variable. It follows the same result as was the case in MMR; mobile phone has an impact on reducing child mortality (both infant mortality rate and under-five mortality rate) indicating the significant contribution of mHealth services in the healthcare deliveries in India.

Further, public health expenditure, domestic income and improved sanitation facilities are facilitating a good environment to reduce child mortality in India. In this case we do not

reject the null hypothesis and proved that mobile health interventions contribute in the reduction of both infant mortality rate and under five mortality rates in India. However, internet users do not have much impact on child mortality rates. Lack of information is the major factor contributes to the high mortality rate as lack of information on vaccination schedules lead to remain a child without immunization and cause death. Access to mobile devices facilitates an atmosphere where both health providers and health seekers have a means to communicate between each other.

Table 9 IMR as a dependent variable						
IMR	Coef.	Std. Err	t	P> t	[95% Conf. Interval]	
Innetu	- 4.603966	.4515964	-10.19	0.000	-5.579581	-3.628352
lhpub	- .2024855	.2068489	-0.98	0.345	-.6493554	.2443844
dlnmosub	1.412388	1.325918	1.07	0.306	-1.452083	4.276859
lhgdp	4.670916	1.268674	3.68	0.003	1.930112	7.41172
lfedu	- .2680412	.056514	-4.74	0.000	-.3901323	-.1459501
dsans	2.334478	1.479553	1.58	0.139	-.8619026	5.530859
dlngdppc	11.66079	18.03076	0.65	0.529	-27.29231	50.61388
cons	61.08751	2.133623	28.63	0.000	56.4781	65.69692
Root MSE	R sq.	Adj. R sq.	SS	MS		
1.3145	0.9934	0.9898	Model	Residual	Model	Residual
F(7, 13) = 277.91			3361.66846	22.4641005	480.238351	1.72800773

Source: Author's Calculation (STATA)

Table 10 U5MR as a dependent variable						
U5MR	Coef.	Std. Err	t	P> t	[95% Conf. Interval]	
Innetu	- 7.307648	.6754626	-10.82	0.000	-8.766896	-5.848399
lhpub	- .3247581	.3093885	-1.05	0.313	-.9931512	.343635
dlnmosub	1.830597	1.983205	0.92	0.373	-2.453857	6.11505
lhgdp	7.380675	1.897584	3.89	0.002	3.281194	11.48016
lfedu	- .3958411	.0845293	-4.68	0.000	-.5784555	-.2132267
dsans	2.799589	2.213001	1.27	0.228	-1.981308	7.580486
dlngdppc	12.57452	26.96901	0.47	0.649	-45.68849	70.83752
cons	82.54604	3.191307	25.87	0.000	75.65164	89.44044
Root MSE	R sq.	Adj. R sq.	SS	MS		
1.9662	0.9938	0.9904	Model	Residual	Model	Residual
F(7, 13) = 277.91			8023.95278	50.2563364	1146.27897	3.86587203

Source: Author's Calculation (STATA)

Conclusion

The Indian case study concludes that mobile phone has a positive impact on healthcare deliveries in maternal and child health as it provides easy access to health information especially in remote and rural areas of India. The statistical results of the regression model suggest that mHealth helps to reduce both maternal and child mortality rate and contribute to achieve unfinished targets of MDGs (4 & 5) and health goals of SDGs (SDG3). In addition, these results are confirmed by the various pilot studies which have been implemented by the government of India in the maternal and child healthcare as (IntraHealth, 2012). These pilot studies in Indian states (Bihar, Uttar Pradesh, Madhya Pradesh and Rajasthan) could be used as empirical validation for the outcomes of the regression model. However, there is a need to tap the potential market of mHealth services for healthcare deliveries in India to make affordable access of medical services. Government should take bold initiatives to implement these services at reasonable rates and improve infrastructure facilities to facilitate mobile services in each and every corner of India.

Bibliography

Arwa Fahad Albabtain, D. A. (2014). The Role of Mobile Health in the Developing World: A Review of Current Knowledge and Future Trends. *Journal of Selected Areas in Health Informatics (JSHI)* Volume 4, Issue 2.

Caroline Free, G. P. (2013). The Effectiveness of Mobile-Health Technologies to Improve Health Care Service Delivery Processes: A Systematic Review and Meta-Analysis. *PLoS Med.*

Dey, A. (2016, August 3). Digitization in Indian healthcare scenario. Retrieved from linkedin: <https://www.linkedin.com/pulse/digitization-indian-healthcare-scenario-ayan-dey>

Dolan, B. (December 2011). Sebelius: Let's keep mobile health safe, secure, American. *Mobile Health News.*

Fulton, a. e. (2011). Health workforce skill mix and task shifting in low income countries: a review of recent. *BioMed Central.*

Gates, B. (2017, September 13). The Stories Behind the Data. Retrieved September 17, 2017, from LinkedIn:

http://www.globalgoals.org/goalkeepers/datareport/?utm_source=BG&utm_medium=LI&utm_campaign=UNGA17&utm_term=GLRPT&utm_content=REP

GHL. (2013). mHealth Basics: Introduction to Mobile Technology for Health. *Global Health Learning.*

IntraHealth. (2012). mHealth Compendium Volume 3. Retrieved May 27, 2017, from mHealth Knowledge:

http://www.mhealthknowledge.org/sites/default/files/case_studies/msakhi.pdf

Isabel Günther and Fink. (April 2010). Water, Sanitation and Children's Health. *The World Bank Policy Research.*

ITU. (2016). ICT Facts and Figures. *International Telecommunications Union.*

Kaul, R. (2018, June). From 167 to 130, India's maternal mortality rate down by 22%. Retrieved from <https://www.hindustantimes.com/health/from-167-to-130-india-s-maternal-mortality-rate-down-by-22/story-MEzNZX7VGGIewyYK7dNDI.html>

Lakshmi, B. (2012, October 28). Mobile Innovations that are Changing India and the World. Retrieved from YourStory: <https://yourstory.com/2012/10/mobile-innovations-that-are-changing-india-and-the-world/>

Mitka, M. (2013). FDA Lays Out Rules for Regulating Mobile Medical Apps. The JAMA Network.

NDTV. (2018, June). India's Maternal Mortality Ratio Has Declined To 130: Health Ministry. Retrieved from <https://www.ndtv.com/india-news/indias-maternal-mortality-ratio-has-declined-to-130-health-ministry-1863603>

PWC. (2012). Emerging mHealth: Paths for growth. PWC.

The Economic Times. (2018, Feb). India 12th among 52 lower middle-income nations having highest infant mortality rates . Retrieved from <https://bit.ly/2tHsl3H>

UNDP. (2015). Good Health and Well being. UNDP.

UNDP. (2017). Human Development Report India. Retrieved 03 28, 2016, from <http://hdr.undp.org/en/countries/profiles/IND>

UNICEF. (2013). Innovative Approaches to Maternal and Newborn Health: Compendium of Case Studies. United Nations Children's Fund.

United, N. (2009). mHealth for Development: The Opportunity of Mobile Technology for Healthcare in the Developing World. United Nations Foundation.

UPENN. (2012). India and China Will Lead the Mobile Health Care Revolution. Wharton, University of Pennsylvania.

WHO. (1998). Health promotion glossary. WHO/HPR/HEP/98.1. Geneva: Organization, World Health Organization.

WHO. (2011). mHealth: New horizons for health through mobile technologies. Global Observatory for eHealth series - Volume 3.

WHO. (2015). The implications for health post-2015. Retrieved September 21, 2017, from World Health Organization: http://www.searo.who.int/india/topics/sustainable-development-goals/sdg_overview_may_2016_delhi.pdf?ua=1

WHO. (2016). Health in the Sustainable Development Goals. World Health Organization.

WHO. (2016). Sustainable Development Goal 3: Health. Retrieved September 15, 2017, from World Health Organization: <http://www.who.int/topics/sustainable-development-goals/targets/en/>

WHO. (May 2016). The Delhi Commitment on Sustainable Development Goal (SDG) for Health released. World Health Organization.

WHO. (n.d.). World Health Statistics 2016: Monitoring health for the SDGs. Retrieved from http://www.who.int/gho/publications/world_health_statistics/2016/en/

Appendix

Appendix 1. Data on Mortality and other Health Indicators of India											
Country	Year	MMR	IMR	U5MR	NETU	MOSUB	HPUB	HGDP	FEDU	SANS	GDPPC
India	1995	471	77.8	109.1	0.026229	0.008023	26.1659	4.018631	61.78843	20.8	622.3037
India	1996	453	75.6	105.7	0.046334	0.033702	25.83294	3.897017	61.78843	21.7	656.6971
India	1997	434	73.4	102.3	0.070768	0.089033	25.24761	4.248071	61.78843	22.7	670.6101
India	1998	414	71.1	98.7	0.139027	0.118621	25.70454	4.296261	61.78843	23.7	699.0689
India	1999	395	68.8	95.1	0.273224	0.183833	28.07905	4.025988	60.47913	24.6	747.252
India	2000	374	66.6	91.5	0.527532	0.343205	26.09068	4.263756	63.51914	25.6	762.3133
India	2001	354	64.3	87.9	0.660146	0.617272	23.97406	4.49651	65.45853	26.6	785.3446
India	2002	335	62	84.4	1.537876	1.207387	23.30709	4.401073	68.9553	27.6	801.5079
India	2003	316	59.9	81	1.68649	3.080125	22.92382	4.296538	77.29548	28.6	850.2933
India	2004	298	57.7	77.7	1.976136	4.701852	24.23336	4.22014	77.29548	29.6	902.9058
India	2005	280	55.7	74.4	2.388075	7.997207	26.48789	4.282175	77.29548	30.6	971.2298
India	2006	265	53.7	71.2	2.8055	14.52388	26.15244	4.246681	77.29548	31.6	1044.894
India	2007	250	51.6	68	3.95	20.15538	26.01662	4.226531	77.29548	32.6	1130.09
India	2008	237	49.6	64.9	4.38	29.53104	26.7944	4.339492	95.14434	33.6	1156.933
India	2009	225	47.6	61.9	5.12	44.12009	27.90321	4.375737	96.63423	34.6	1237.34
India	2010	215	45.5	58.8	7.5	62.39006	27.12857	4.27968	96.63423	35.5	1345.77
India	2011	206	43.5	55.9	10.07	73.19804	27.13775	4.331151	93.28742	36.5	1416.403
India	2012	197	41.6	53	12.58006	69.92239	26.97337	4.389042	93.28742	37.5	1474.968
India	2013	189	39.7	50.3	15.1	70.78318	28.41362	4.529118	99.00336	38.5	1550.142
India	2014	181	37.9	47.7	21	74.48377	30.03652	4.685088	100.1131	39.5	1646.781
India	2015	174	36.2	45.2	26	78.84136	0	0	0	39.6	1758.043

Source: World Development Indicators and UN data

A Review to Regulate the Knowledge Management Practices among Faculties of Engineering Colleges in Trichy City

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Abstract

Knowledge Management [KM] originated in the early 1990 and is found to be successfully incorporated in government, health care and information sectors. The environmental challenges of digitalization, globalization, and industrialization, which are growing at a fast pace, require serious attention. As a result, the old structures of the education system established in pre-independent India and in place during most of the twentieth century are now required to undergo drastic changes. The introduction of ICT and knowledge management systems (KMSs) in Indian education for achieving these new visions would require enormous changes in the system. Therefore, the aim of this paper is to regulate the perception of faculties about KM orientation in engineering institutions in the Trichy city.

Key words: KNOWLEDGE, MANAGEMENT, EDUCATION, EDUCATORS.

Introduction to Knowledge Management

Human Resource is considered to be very crucial in an organization's well-being. Today, organizations look upon Human Resources as the most important of all the assets based on the emerging values of humanization. Development is considered to be the soul of the HRM function, which reflects on the organization's effectiveness. Knowledge management in a growing economy like India is the need of the hour. Educational sector in India is the most effective instrument for India's economic development, for which developing Human Resources for this sector has become essential to achieve the national objectives. In spite of the rapid technological reformations, Human Resource remains the backbone of the organizational structure of self-financing engineering colleges in India which undertake the crucial responsibility of transforming their operational system into a modern one that suits the present requirements.

Knowledge Management and sharing of Knowledge has been emerged as one of the most important area in management practices and established as a basic resource for organizations and economies. As more and more information and knowledge is created and shared, the world is slowly becoming more knowledge-oriented. This is owing to the rapid development of information systems and technologies which facilitates organisations to administer their knowledge assets more effectively. The organisations of late, have realized that the intellectual capital or the corporate knowledge is a valuable asset which can be managed as well as shared effectively to improve the management practices. Besides, it also enables organisations to gain competitive advantage.

Thus, information and knowledge is critical not only for competitive existence but also for the sustainability of the organisations. Faculty members constitute one of the major factors of educational institutions and universities, because they play a crucial role in knowledge

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creation. Knowledge sharing and collaboration among faculty members have a significant impact on performance of universities in several areas, including increase of scientific productivity. Therefore, identifying the perception of the faculty members seems to be necessary. The present study attempts to examine the perception of faculty members toward knowledge management practices in engineering colleges.

Evolution of Knowledge

2000 Knowledge Management Knowledge Sharing Culture Enterprise Integration Intellectual Capital Harnessing
The 90's Learning Organization Market Valuation Information Systems Intranets / Extranets Re-engineering
The 80's TQM Downsizing
The 70's Strategic Planning Portfolio Management Automation
The 60's Centralization and Decentralization Conglomeration
The 50's Diversification EDP Quantitative Management Management by Objectives

Knowledge in Engineering Colleges

Knowledge Economy and Engineering Education Monetary and communal growth are the focus of twenty first century. In this knowledge economy, knowledge will be an influential feature in managerial and financial achievement. The majority successful business in the knowledge economy will use the knowledge both inside and outside to gain competitive advantage. The employees in any organization – be it industry or education- should be able to fully realize the potential of knowledge management and apply it to scale greater heights of success.

The employees are the key persons who manage knowledge and they are vital to any organization. The magnitude of changes taking place in the environment is even more a strong point in adopting knowledge management practices inside an enterprise. The notion of knowledge management is that all are knowledge workers to a certain extent. The generation and dissemination of knowledge are crucial activities of an enterprise. No way is the education sector different as faculty members, research analysts and others all bank upon their skills to execute a job on hand in an efficient and effective manner. Engineering education is among the key enablers of growth for transforming India's economy.

The way in which knowledge is imparted will mark an important way in India emerging as universal knowledge leader. It will also provide vital inputs for enhancing efficiency across sectors. Almost everything faculty members do in the institution is based on their knowledge. If they do not constantly update and renew their knowledge, share their knowledge, and then use that knowledge to do things differently and better, then people, institutions, students and the general public will ultimately suffer. What can transform that,

along with the current investment and modernization programme, is harnessing the vast collective knowledge of the people working in the Self-Financing Engineering Colleges and using it to best effect. That is why knowledge management is required.

Importance of Knowledge Management

The importance of Knowledge Management today has increased greatly with so much knowledge floating around every organization. Its importance however, depends upon the effectiveness with which the managed knowledge is disseminated among the members of the organization to deal with everyday situation effectively.

Education of Knowledge Management is interdisciplinary. One has to master skills in organizations, particularly business, communication processes and strategies, the organization of intellectual assets, information needs analysis and inventories, methods of eliciting tacit knowledge and information capture, knowledge dissemination and packaging, information standards, policies and procedures.

Objective of the study

The main objective of the study is to regulate the knowledge management practices prevailing in the engineering institutions in Trichy city.

Limitations of the study

This study is confined to faculty members working in engineering colleges in Trichy city. The study does not focus on the other higher educational institutions and also does not take into account the students or management of engineering colleges. Department wise grouping and analysis were not carried out because the focus of the study was faculty members in general.

Review of Literature

1. A study by **Vandna Sharma (2012)** reveals that the Factor analysis produced five factors of KM orientation after deleting those items with a factor loading of less than 0.50. The results indicate that five attributes – i.e. knowledge acquisition, knowledge dissemination, leadership, culture and technology – are important dimensions of knowledge management orientation in engineering institutions.
2. From the study by **Parameswaran, R (2016)** the major findings of the study revealed that the librarians of studied institutions have good awareness on knowledge management basic, resources and techniques. It is obvious that the ways of knowing of knowledge management process among the librarians are varied. The importance of knowledge management practices in libraries is accepted by most of the respondents. Due to the varying understanding of knowledge management processes, few of the respondents have a shallow perception of the knowledge management processes.
3. Subarna M Tuladhar, (2004) has identified the significance of Knowledge training in his article. Knowledge training provides trainees with learning opportunities to enhance their effectiveness to contribute to organisational Knowledge. It has been found that Knowledge training was a systematic arrangement of learning experiences in the pattern which would provide most learning in the shortest possible time. Identification of knowledge training needs, formulation of objectives, designing knowledge training, implementing knowledge training and assessing its effectiveness were identified as five components of a systematic knowledge training approach.
4. Alan Sweeney (2005) highlighted the IT skills gap existing in the organisation and promotes knowledge training and development as a solution. The target audience was kept in mind and usage of third party knowledge training to plug in skill gaps was

- considered. The resultant improvement was identified in the form of reduced IT skill gaps between required and acquired skills.
5. Narasimha Rao (2006) in his study focused on Knowledge Training and Development of Human Resource in selected public and private sector undertakings. The objectives set for the study were to examine the knowledge training practices in selected public-sector undertakings and to study the perception of managers about the usefulness and techniques used in knowledge training. The respondents felt that knowledge training was essential for individual growth and development to enhance productivity. It was concluded that the top management of the selected organisations realised the importance of knowledge training and its impact on the managerial people.
 6. Terri R. Kurtzberg, Charles E. Naquin, Liuba Y. Belkin (2005) in their empirical study explored the effect of using e-mail as a communication medium instead of pen and paper while conducting Knowledge appraisals of peers. The study findings demonstrated that evaluators offered more negative appraisals of the peers when using email than the traditional method. This was the result of reduced social obligation in e-mail indicating the effect of socio psychological processes.
 7. C.V. Kannaji Rao (2006) in his empirical study evaluated the system of Knowledge management prevailing in Hindustan Ship Yard Ltd., Its study objectives were to know about the different kinds of Knowledge managements (KM) existing in HSL and to highlight the perception of both Appraisers and Appraisees on issues relating to KM. It was concluded that the KM in HSL was moderately effective and improvements in the system could derive more benefits for the employees as well as the organisation.
 8. Pallab Bandyopadhyay (2005) in his paper aimed at comparing traditional industries with that of professionals in the IT industry looking for self-defined career and career success. It was found that innovative way of satisfying internal career needs could help in retention of IT professionals. The study observed that the IT industry was contributing enormously to the Indian economy by earning foreign exchange through export of manpower services and product development. The booming Indian IT sector was represented by the growth of software industry.
 9. The paper by Anil Kumar Singh (2005) attempted to identify the relationship between Human Resource Practices and the Philosophy of management of the Indian business organisations. The objectives of the study were to examine the assumption of top management about the people working in the organisation, understanding the philosophy of management, examine the nature of differences in the public and private sector and the nature of relationship between HRD practices. Findings showed that contrary to the hypothesis, there was no significant relationship between the variables of HR practices, particularly knowledge training and development and rewards; they were highly but negatively related to the philosophy of management.
 10. The study by Sonal Saxena (2006) sought to elaborate on major challenges faced by the IT industry in the area of Human Resource Development. HRD activities must be consistent with the development efforts of the organisation to mobilise the employees' potential. In order to reach new level of maturity and strength, the IT companies were expected to think in new dimensions. The major findings of this descriptive research conducted among five IT organisations through a questionnaire survey confirmed the existence of effective HRD climate.

11. Gupta and Govindarajan (2000) have conceptualized knowledge conversion in terms of five dimensions: (a) perceived value of the source unit's knowledge; (b) motivational disposition of the source; (c) existence and richness of the transmission channels; (d) motivational disposition of the receiving unit; and (e) the absorptive capacity of the receiving unit. Because effective communication between organization and environment directly concerns knowledge transfer, this process is the most important factor to manage.

Conclusion

Indian educational system has entered the new era of technology-enabled and customer-centric education. It is bracing itself to catch up with the global trends in education – in the matter of upgradation of service quality standards, provision of multiple delivery channels, newer innovations in products and services and provision for financial services beyond the traditional boundaries of education. Whilst pursuing these endeavours, Indian education continues to readjust itself to the demands and compulsions of involving global prudential standards. In this journey, the educational sector is supported by a robust supervisory system.

For successfully operating in the new educational order, they need to build new capabilities. In tune with the paradigm shift in Indian educational sector, the HR function in the colleges has to extricate itself from the mode in which it found itself over the last four to five decades. As the market has changed, the customer too has changed, customer expectations have taken new forms, and people policies also have to change, as it is the people who will be the key differentiators in the new era. Human capital together with financial capital and technology capital, would contribute to the capabilities of the educational organisations to adjust to the new educational order.

References

1. Vandna Sharma, (2012) "A perceptual study on KM orientation in Indian private engineering institutions", *International Journal of Educational Management*, Vol. 26 Issue: 3, pp.234-251, <https://doi.org/10.1108/09513541211213327>
2. Subarna M Tuladhar, Staff Knowledge training: Emerging Concept and Process, *Administration and Management Review*, Vol.16, No.1, Jan 2004 56.
3. Alan Sweeney, What is the key to combating the IT skills gap? *Development and Learning in Organizations*, Vol. 19, Iss. 5, Oct 2005, pp.17-19, 57.
4. Carol Rainsford, Eamonn Murphy Technology-enhanced learning: An Irish industry perspective, *Journal of European Industrial Knowledge training*, Vol. 29, Iss. 6, Aug 2005, pp.457–471 58.
5. Michael Graham, How to maximise your investment in IT knowledge training, *Human Resource Management International Digest*, Vol. 13, Iss. 2, Mar 2005, pp.3 – 4 59.
6. V.N. Srivastava, M. Shafiq and K. Ghosh, Higher Knowledge management through systematic knowledge training efforts, *Indian Journal of Knowledge training and Development*, Vol. XXXV, No.4, Oct-Dec 2005, pp.19-27 60.
7. Ibid pp.41-51 61.
8. Narasimha Rao, Managerial Knowledge training and Development A study of selected public and private sector undertakings of Vishakhapatnam, *GITAM Journal of Management*, Vol.4, No.1, Jan-June 2006, pp.119-130
9. Terri R. Kurtzberg, Charles E. Naquin, Liuba Y. Belkin, Electronic Knowledge Appraisals: The effects of e-mail communication on peer ratings in actual simulated

- environments, Organisational Behaviour and Human Decision processes, Vol.98, No.2, Nov 2005, pp.216-225
10. Ravi Dasari, Retaining High Performers Issues and Imperatives, HRM Review, May 2006 pp.55-60 82.
 11. C.V. Kannaji Rao, Knowledge management (A Case Study of Hindustan Ship Yard Limited, Visakhapatnam), GITAM Journal of Management, Vol.4, No.2, Jan – Jun 2006, pp.146-155
 12. Pallab Bandyopadhyay, Career Anchor based Human Resource Practices: An Innovative way for Retaining Indian IT Professionals, Emerging Asia An HR Agenda , The National HRD Network, New Delhi, Tata McGraw-Hill Publishing Company Limited, 2005, pp.473-487
 13. Anil Kumar Singh, HRD Practices and Philosophy of Management in Indian Organisations, Vikalpa The Journal for decision makers, Vol.30, No.2 Apr-June 2005, pp.71-78
 14. Sonal Saxena, Human Resources Development Climate in Indian IT Companies, ICFAI Journal of Management Research, Feb. 2006
 15. Gupta, A., & Govindarajan, V. (2000). Knowledge flows within multinational corporations. Strategic Management Journal, 21(4), 473-496. 130.Grant,
 16. R. M. (1996). Toward a knowledge-based theory of the firm. Strategic Management Journal, 17(10), 109-122.

MECHANISM OF ARBITRAGE IN INDIAN STOCK MARKET – A STUDY ON IT COMPANIES

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Arbitrage occurs when a security is purchased in one market at a lower price and simultaneously sold in another market at a higher price, thereby resulting in riskless profit for the trader. It is a trade that profits by exploiting the price differences of identical or similar financial instruments on different markets or in different forms. Arbitrage exists as a result of market inefficiencies and would therefore not exist if all markets were perfectly efficient. Differences in prices usually occur because of imperfect dissemination of information. Only large institutional investors and hedge funds are capable of taking advantage of arbitrage opportunities, as trading fees would eat up any profits that an individual arbitrageur hoped to secure. Arbitrage is possible when one of the three conditions are satisfied: (WIKIPEDIA)

- a) The same security does not trade at the same price on all markets (the law of one price).
- b) Two securities with identical cash flows do not trade at the same price.
- c) An asset with a known price in future does not today trade at its future price discounted at the risk-free interest rate.

Arbitrage is not just the act of buying at low price and selling at higher price, but the transactions must occur simultaneously to avoid exposure to market risk, or the risk of price change in one market before the completion of transactions. Arbitrage transactions in modern securities markets involve fairly low day-to-day risks, but can face extremely high risk in rare situations. The main day to day risk involves execution risk. Execution risk arises when the price of one market changes before the arbitrage is completed. In other words, it is impossible to close two transactions at the same time, therefore there is a possibility when one part of the deal is closed, a quick shift in prices makes it impossible to close the other at a profitable price.

Let us take an example of arbitrage transaction of Weizmann Forex:

NSE

PREV. CLOSE	OPEN PRICE	BID PRICE	OFFER PRICE
71.90	72.50	0.00	71.90

BSE

PREV. CLOSE	OPEN PRICE	BID PRICE	OFFER PRICE
66	66.90	64.30	0.00

In the above case, we can observe that offer price in NSE is 71.90 and bid price in BSE is 64.30. Arbitrage is only possible in case of higher bid price and lower offer price in either of the exchanges. So in this case there is no arbitrage opportunity.

As we have mentioned earlier, arbitrage is generally undertaken by large institutional investors, so we are providing some data as on 29th may 2018 to show the mechanism of arbitrage as follows: (www.ndtv.com)

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COMPANY	NSE Price in Rs.	BSE Price in Rs.	Difference in Rs.	Difference (%)
3M India	19933.95	19802.10	131.85	0.67
Akzo Nobel India	1906.80	1907.85	1.05	0.06
BHEL	79.20	79.25	0.05	0.06
Crest Ventures	176.60	178.90	2.30	1.29
FinolexInds	620.95	620.10	0.85	0.14
Goa Carbon	681.65	682.55	0.90	0.13
Hexaware Tech.	435.05	435.60	0.55	0.13
Just Dial	609.05	608.40	0.65	0.11

Literature Review

Brennan and Schwartz (1990) observed that arbitrage trade was a positive function of absolute deviation from fair value and of directional volatility. Yadav and Pope [1994] provided evidence on stock index futures and concluded that potential arbitrage opportunities are economically significant. Kumar and Seppi (1994) found that illiquidity might have long lasting impact on basis; therefore arbitrageurs struggle to close the gap between two prices. Delbaen and Schachermayer [1995] discussed about arbitrage and gave some criteria for the stability of no arbitrage conditions. The seminal work of Pikovsky and Karatzas [1996] focused on the additional logarithmic utility for an insider when he gains some private information from the beginning of trading. Grorud and Pontier [1998] provided arbitrage strategies in examples of private information, such as knowledge of ratio at time T of two asset prices. Imkeller et al. [2001] used Malliavin calculus to derive the preservation of the semi-martingale property and construct explicit arbitrage strategies. In Fernholz et al. [2005], a relative arbitrage is linked with weak diversity, a market property which means that no single stock is allowed to dominate the entire market in terms of relative capitalization, or with volatility-stabilized markets as in Fernholz and Karatzas [2005]. Fernholz and Karatzas introduced the notion of optimal relative arbitrage with respect to market portfolio. Bhatia (2007) has used intraday data and has evidenced that Indian equity futures market is an efficient price discovery vehicle but the scope of the study is limited to Nifty futures. Gupta (2008) have found that significant and exploitable arbitrage opportunities exist in Indian capital market.

It can be observed that people are not so much aware of the mechanism of arbitrage and its importance in various sectors. Therefore, we have tried to explain the mechanism of arbitrage in simple language and we have selected IT sector for our analysis as it is the most growing sector of our economy.

Objective of Study

1. To understand the mechanism of arbitrage in Indian stock market.
2. To analyze the possibilities of arbitrage in IT sectors.
3. To analyze the impact of transaction costs on arbitrage gain.

Data Collection and Methodology

We have collected our data from www.bseindia.com and www.nseindia.com. We have selected TCS and INFOSYS to show the possibility of arbitrage in IT sectors as these two companies are two major IT companies. We are providing some data to justify our selection. TCS has been the world's 9th largest IT services provider by revenue (Times of India 22 April 2014 "TCS joins top 10 global IT services companies club". In 2015, TCS is

ranked 64th overall in the Forbes World's Most Innovative Companies. TCS has also acquired 10th rank on the Fortune India 500 list (2017). Infosys has been ranked in Fortune magazine's 100 Fastest Growing Companies 2009. Infosys is the second-largest Indian IT company by 2017 revenues and 596th largest public company in the world in terms of revenue. ("Forbes 2017 Global 2000")

We have used open price of NSE and BSE spot market to elucidate the mechanism of arbitrage in case of both TCS and INFOSYS. We arrived at the arbitrage value per share from the difference between open price of BSE spot market and NSE spot market. After that we have computed arbitrage value for 100 shares by multiplying arbitrage value per share with 100 (no. of shares). Then we have calculated the turnover based on opening price by multiplying the open price with 100 (no. of shares) with respect to both NSE and BSE. Transaction cost @0.02% is levied on the total turnover of both NSE and BSE. Transaction cost includes brokerage and other statutory charges like STT (securities transaction tax), stamp duty, SEBI turnover charges and GST (goods and service tax). On an average, the base brokerage is considered as 0.01%, while the rate of statutory charges fluctuates based on turnover and the area. On an average basis we have taken the rate of statutory charges as 0.01%, therefore the transaction cost is 0.02% in this case. Finally, we can find the net arbitrage gain by deducting total transaction cost of each day from the arbitrage value of 100 shares with respect to each day. The profit on arbitrage can be earned if the transaction is undertaken within a very short period of time as the gain will arise out of the price differences in two markets; therefore we have shown the arbitrage profit with respect to Intraday trading (trading within a same day). We have taken a sample of 1 month to show the importance of transaction cost in arriving at the net arbitrage profit on transaction. We can formulate a hypothesis to see whether there is significant difference between arbitrage profit before charging transaction cost and profit after charging transaction cost. Let us assume x and y to be the arbitrage profit before transaction cost and profit after charging transaction cost respectively with means μ_1, μ_2 and variances σ_1 and σ_2 .

HYPOTHESIS FORMULATION: $H_0: \mu_1 = \mu_2$ against the alternative $H_1: \mu_1 \neq \mu_2$.

For both the companies we can see that the sample size is 19, which is less than 30. Therefore, we can use paired sample t test to test whether there is significant difference between arbitrage value before charging transaction cost and profit after charging transaction cost.

TEST STATISTIC: The appropriate test statistic is

$$t = \frac{\sum d}{\sqrt{\frac{n(\sum d^2) - (\sum d)^2}{n-1}}}$$

where $d = x - y$, $n =$ sample size, degree of freedom(df) = $n - 1$, level of significance(α) = 5%.

The data of TCS & INFOSYS under NSE & BSE spot market for March 2018 is given below:

TCS DATA FROM 01/03/2018 TO 31/03/2018									
				N	NX 100shs.	On NSE	On BSE		
Symbol	Date			ARBITRAGE VALUE PER SHARE	ARBITRAGE VALUE PER 100 SHARES	Turnover based on opening price	Turnover based on opening price	Total Transaction cost @ 0.02%	Net Profit on Transaction
TCS	01-Mar-18			8.00	800.00	304900	304100	121.80	678.20
TCS	05-Mar-18			20.00	2,000.00	304900	306900	122.36	1877.64
TCS	06-Mar-18			11.00	1,100.00	312200	313300	125.10	974.90
TCS	07-Mar-18			15.00	1,500.00	307000	305500	122.50	1377.50
TCS	08-Mar-18			5.10	510.00	305490	306000	122.30	387.70
TCS	09-Mar-18			9.00	900.00	300500	301400	120.38	779.62
TCS	12-Mar-18			8.00	800.00	304300	303500	121.56	678.44
TCS	13-Mar-18			3.10	310.00	292490	292800	117.06	192.94
TCS	14-Mar-18			3.05	305.00	289295	289600	115.78	189.22
TCS	15-Mar-18			3.85	385.00	289500	289115	115.72	269.28
TCS	16-Mar-18			0.05	5.00	286880	286875	114.75	-109.75
TCS	19-Mar-18			11.70	1,170.00	282900	284070	113.39	1056.61
TCS	20-Mar-18			7.45	745.00	282000	282745	112.95	632.05
TCS	21-Mar-18			12.25	1,225.00	287250	286025	114.66	1110.35
TCS	22-Mar-18			-	395.00	285995	285600	114.32	280.68
TCS	23-Mar-18			4.70	470.00	280200	280670	112.17	357.83
TCS	26-Mar-18			2.30	230.00	281900	281670	112.71	117.29
TCS	27-Mar-18			4.90	490.00	282500	282010	112.90	377.10
TCS	28-Mar-18			3.10	310.00	283590	283900	113.50	196.50
				TOTAL	13,650.00	5563790	5565780	2225.91	11,424.09

INFOSYS DATA FROM 01/03/2018 TO 31/3/2018

				N	N X 100shs	On NSE	On BSE		
Symbol	Date			ARBITRAGE VALUE PER SHARE	ARBITRA GE VALUE PER 100 SHARES	Turnov er based on opening price	Turnov er based on opening price	Total Transactio n cost @0.02%	Net Profit on Transacti on
INFY	01-Mar-18			3.85	385.00	116960	117345	46.86	338.14
INFY	05-Mar-18			0.75	75.00	116075	116000	46.42	28.59
INFY	06-Mar-18			4.70	470.00	116255	116725	46.60	423.40
INFY	07-Mar-18			3.70	370.00	115500	115130	46.13	323.87
INFY	08-Mar-18			-	500.00	114900	114400	45.86	454.14
INFY	09-Mar-18			2.15	215.00	116235	116020	46.45	168.55
INFY	12-Mar-18			5.70	570.00	117600	117030	46.93	523.07
INFY	13-Mar-18			4.00	400.00	118020	117620	47.13	352.87
INFY	14-Mar-18			1.00	100.00	118000	117900	47.18	52.82
INFY	15-Mar-18			-	-	118000	118000	47.20	-47.20
INFY	16-Mar-18			2.80	280.00	118200	118480	47.34	232.66
INFY	19-Mar-18			0.70	70.00	116400	116470	46.57	23.43
INFY	20-Mar-18			1.45	145.00	114860	114715	45.92	99.09
INFY	21-Mar-18			6.90	690.00	117000	116310	46.66	643.34
INFY	22-Mar-18			2.40	240.00	116450	116690	46.63	193.37
INFY	23-Mar-18			2.00	200.00	114700	114500	45.84	154.16
INFY	26-Mar-18			0.10	10.00	116690	116700	46.68	-36.68
INFY	27-Mar-18			15.00	1,500.00	116000	114500	46.10	1453.90
INFY	28-Mar-18			2.25	225.00	115075	115300	46.08	178.93
				TOTAL	6,445.00	2212920	2209835	884.55	5,560.45

Analysis & Findings

From the above schedules we can see that both TCS and INFOSYS can experience arbitrage gain (on intraday basis) from the difference in open price of BSE SPOT MARKET and NSE SPOT MARKET, after adjusting the transaction cost. Therefore, arbitrage opportunity will only exist if the arbitrage value calculated on basis of difference between open price of BSE and NSE will exceed the transaction cost. In most of the cases (for most of the days), we are getting arbitrage profit after adjusting transaction cost in case of both TCS and INFOSYS. But for TCS on 16th march, 2018 the transaction cost has exceeded the difference in open price of BSE and NSE, therefore arbitrage would not be profitable on this day as it will lead to loss. Similarly, for INFOSYS on 15th march, 2018 and on 26th march 2018, the transaction cost is more, therefore arbitrage is not recommended. In most of the days, arbitrage is yielding profit and therefore after an analysis of one month, we can observe that for both TCS and INFOSYS, arbitrage is leading to profit for the entire month of March 2018.

Computation

FOR TCS: $t_{\text{calculated}} = -119.525$

FOR INFOSYS: $t_{\text{calculated}} = -2.693$

At 5% level of significance and df being 18, tabulated value of $t(t_{0.025, 18}) = 2.101$.

Since (absolute value of calculated t) $|t_{\text{calculated}}| > t_{0.025, 18}$ (tabulated t) for both TCS & INFOSYS, we reject the null hypothesis at 5% level of significance.

Conclusion

From the above analysis, we can conclude that there is significant difference between arbitrage profit before charging transaction costs and after charging transaction costs. This difference is due to existence of transaction costs. Thus, we can claim that transaction costs play significant role in determining actual profit in arbitrage. We can also infer that in spite of presence of transaction cost, we can generate arbitrage profit for the month of March for both the IT companies. Therefore it can be concluded that there exist arbitrage opportunities in IT sectors. It is also evident that transaction cost plays a significant role while determining possibility of arbitrage. In some of the cases when transaction cost has exceeded the arbitrage value, arbitrage is not profitable (TCS on 16th march, 2018; INFOSYS on 15th march, 2018 and on 26th march 2018). The importance of arbitrage is so relevant because of its ability to generate riskless profit. We have clearly seen the mechanism of arbitrage in our above analysis, and in the month of March an arbitrage gain of Rs.11424.09 & Rs. 5560.45 can be generated. It is important to note that the arbitrage value calculated earlier gets reduced due to the transaction costs for both the companies. Arbitrageurs utilize these opportunities to pocket riskless gain and in this process the mispricing gets eliminated. It should also be mentioned that these mispricing persist from time to time due to factors like fundamental risks, lesser liquidity of markets, lack of information etc

References

1. <https://www.investopedia.com/terms/a/arbitrage.asp>
2. <http://www.investinganswers.com/financial-dictionary/world-markets/arbitrage-2171>
3. <https://en.m.wikipedia.org/wiki/Arbitrage>
4. <https://www.worldscientific.com/doi/abs/10.1142/S0219024998000199>
5. <https://books.google.co.in/books?id=s3a0CwAAQBAJ&pg=PA142&lpg=PA142&dq=grorud+and+pontier+arbitrage&source=bl&ots=U4ngqzQoOv&sig=IPAM9PcEZuNZo1vb->

nZOFolMrqI&hl=en&sa=X&ved=2ahUKEwi7z56W6JHbAhXIpY8KHa4cB3UQ6AEwC
XoECAAQAQ#v=onepage&q=grorud%20and%20pontier%20arbitrage&f=false

6. <https://www.forbes.com/companies/infosys/>

7. https://en.m.wikipedia.org/wiki/Tata_Consultancy_Services

8. <https://www.infosys.com/newsroom/features/Pages/fortune-100.aspx>

9. <https://en.m.wikipedia.org/wiki/Infosys>

10. Price Discovery and Arbitrage Efficiency of Indian Equity Futures and Cash Markets
by Kapil Gupta, Dr. Balwinder Singh.

11. A Study Of Arbitrage Opportunities In Financial Markets Without Martingale
Measures (Candidate: CHAU Ngoc Huy) [PARIS DIDEROT].

12. www.bseindia.com

13. www.nseindia.com

14. <https://www.ndtv.com/business/marketdata/arbitrage-opportunity>

15. <https://www.google.co.in/search?q=t+distribution+table&oq=t+distr&aqs=chrome.2.69i57j0l2j5.4339j1j9&client=ms-android-lenovo&sourceid=chrome-mobile&ie=UTF-8#imgrc=8woSJWWgV4XSCM>

An Inventory Model for Damageable Items with Permissible Delay In payments And Price Discount

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G.GNANAVEL**

Abstract

In this paper, a purchasing inventory model for damageable items is discussed. To minimize the total inventory cost optimum order quantity and cycle time is determined. Here the retailers are given trade credit offer. In this model, the supplier provides replacement, or price discount for damageable items. Shortages are allowed and backlogged. The results are illustrated with numerical example.

Keywords- Permissible delay in payments, trade credit period, Price discount

I. INTRODUCTION

An important assumption in inventory models found in the existing literature is that the lifetime of an item is infinite while it is in storage. But the effect of deterioration plays an important role in the storage of some commonly used decaying items like, breakable items (glass, china clay, ceramic goods...etc). Due to the deterioration in store products some of these items loses their quality and cannot complete the customer's need for ideal product. Deterioration in these items may be constant, continuous, time dependent or stock dependent. The economic order quantity model is based on the assumption that the retailer paid for the items immediately after the items are received. However, in practice, the supplier may provide the retailer many incentives such as a cash discount to motivate faster payment and stimulate sales, or a permissible delay in payment to attract new customer and increase the sales. Hence trade credit can play a major role in inventory control for both the supplier as well as retailer.[1]Goyalfirst developed the EOQ model under the conditions of permissible delay in payments, [2]JayanthiRay(2014) considered a nonlinear EOQ model with effect of trade credit.[3]MedhiSajadifar, Ahmadavaji developed an inventory model with demand dependent replenishment rate for damageable items and shortages.[4]Mukesh Kumar et al developed a deterministic inventory model for deteriorating items with price dependent demand and time varying holding cost under trade credit. In [6] Tangam A considered Retailers inventory system in a two level trade credit financing with selling price discount and partial order cancellations. [5] Palanivel M et al consider an EOQ model for non-instantaneous deteriorating items with power demand time dependent holding cost, partial backlogging and permissible delay in payments. Recently many authors developed an EOQ model for deteriorating items with quadratic demand rate under permissible delay in payments.

In this model customer may pay cash when the supplier offered trade credit to the retailer. The shortages are allowed when unsatisfied demand will be backlogged in each cycle. The demand rate is time dependent, and the suitable numerical example is given to illustrate the model.

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II. NOTATIONS AND ASSUMPTIONS

2.1 Notations

The following notations have been used in developing the model.

A - The ordering cost per order.

P- The purchasing rate per unit time per year.

Q- The initial inventory level.

D(t)-The demand rate at any time $t \geq 0$, $D(t)=a+bt, a, b > 0$ where a, b are positive constants.

T- The length of replenishment cycle.

r- The price discount.

h- The holding cost per unit per unit time.

θ - The rate of damageable items.

I_e - Interest which can be earned per year.

I_p - Interest payable per year.

C_1 - The shortage cost for backlogged items per unit per year.

t_1 - The time at which the inventory level reaches zero.

t_r - The replacement time and trade credit period.

m_0 - The mark up of selling price for damaged items.

B(Q)-The number of damaged units per unit of time at time t and is a function of current inventory level Q

TC - The minimum total cost per unit time.

2.2 Assumptions

The following assumptions are made in developing the model

- ✓ *The retailer offers price discount to his supplier at $t_1 < t_r$.*
- ✓ *The damageable items are replaced when end of the trade credit period.*
- ✓ *The time horizon is infinite.*
- ✓ *The lead time is zero.*
- ✓ *Shortages are allowed and backlogged.*
- ✓ *Selling price for damaged items S_d is a multiple of purchasing cost. $S_d = m_0 * P$ $0 \leq m_0 \leq 1$.*

III. MATHEMATICAL FORMULATION

Based upon the above notations and assumptions are to be defined as follows.

Case: I $t_1 > t_r$

The retailer replaced damageable items at end of the permissible delay period.

Case:II $t_1 < t_r$

The retailer adopts each discount to settle the accounts and the payments in time t_r

Case:III $t_1 = t_r$

The retailer replaces damageable items at the end of the permissible period; at the time of inventory level is zero.

3.1. CASE: I $t_1 > t_r$

In this section, the detailed mathematical formulation of the inventory problem is given. The inventory level is dropping to zero because of demand and damageable items during the interval $[0, t_1]$. The period $[0, t_r]$ is a delay in payments and t_r is the replacement time for damageable items. Finally the shortage occurs due to demand and backlogging during the time interval $[t_1, T]$, based on the above description, the inventory level at time t, I(t) will be described by the following differential equation.

$$\frac{dI(t)}{dt} + \theta I(t) = -(a + bt) \quad 0 \leq t \leq t_r \quad (1)$$

$$\frac{dI(t)}{dt} + \theta I(t) = -(a + bt) \quad t_r \leq t \leq t_1 \quad (2)$$

$$\frac{dI(t)}{dt} = -D(t) \quad t_1 \leq t \leq T \quad (3)$$

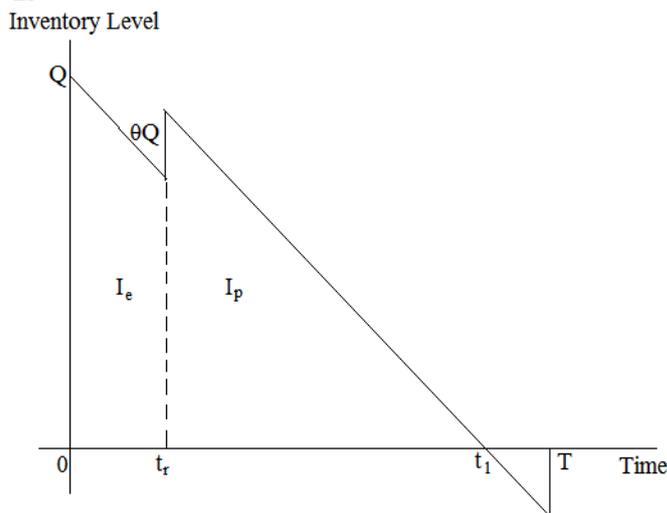


Fig 1

With the boundary conditions $I(t)=Q$, $I(t_r)=\theta Q$,
 $I(t_r) = Q(1 - \theta t_r) - at_r + Q\theta$, $I(T) = -S$, $I(t_1) = 0$
 $I(t) = Q(1 - \theta t) - at \quad 0 \leq t \leq t_r \quad (4)$

$$Q = \frac{at_r}{(1 - \theta t_r - \theta)} \quad (5)$$

$$I(t) = [Q(1 - \theta t_r + \theta) - at_r]e^{\theta(t_r-t)} + (a + bt_r)(t_r - t) \quad t_r \leq t \leq t_1 \quad (6)$$

$$I(t) = \left[a(T - t_1) + \frac{b}{2}(T^2 - t_1^2) - S \right] \quad (7)$$

$$S = \left[a(T - t_1) + \frac{b}{2}(T^2 - t_1^2) \right] \quad (8)$$

The ordering cost is $OC=A$ (9)

The purchasing cost is

PC=

$$P * \left[Q + a(T - t_1) + \frac{b}{2}(T^2 - t_1^2) \right] \quad (10)$$

The total inventory holding cost for the cycle $[0, t_1]$ is

$$HC = h \int_0^{t_1} I(t) dt$$

$$HC = h \left[Qt_r \left(1 - \frac{\theta t_r}{2} \right) - \frac{at_r^2}{2} + \frac{(a + bt_r)}{2} (t_1 - t_r)^2 - \frac{1}{\theta} [Q(1 - \theta t_r + \theta) - at_r] (e^{\theta(t_r-t_1)} - 1) \right] \quad (11)$$

The total shortage cost SC during the period $[t_1, T]$ is given by

$$SC = C_1 \int_{t_1}^T I(t) dt$$

$$SC = C_1 \left[\frac{a}{2} (T - t_1)^2 + \frac{b}{6} (2T^3 - 3T^2 t_1 + t_1^3) - S(T - t_1) \right] \quad (12)$$

The interest earned in $[0, t_r]$ is

$$IE_1 = sI_e \int_0^{t_r} D(t) dt$$

$$IE_1 = sI_e \left[at_r + \frac{bt_r^2}{2} \right] \quad (13)$$

The interest payable per cycle per unit time for the inventory after the due date say t_r is

$$IP_1 = PI_p \int_{t_r}^{t_1} I(t) dt$$

$$IP_1 = PI_p \left[-\frac{(a + bt_r)}{2} (t_1 - t_r)^2 - \frac{1}{\theta} (Q(1 - \theta t_r + \theta) - at_r) (e^{\theta(t_r - t_1)} - 1) \right] \quad (14)$$

Case: 3.2.2

$$t_1 < t_r$$

In this case, during $[0, t_1]$ the inventory level reduces due to demand as well as damageable items. In this period, price discount is allowed for damageable items. The time t_r is the permissible time given to the retailer for delay in payments. Finally, shortages occur due to demand and backlogging during $[t_1, T]$. The differential equation representing the inventory status is

$$\frac{dI(t)}{dt} + \theta I(t) = -D(t) \quad 0 \leq t \leq t_1$$

With the boundary conditions $I(t)=Q, I(T) = -S, I(t_1) = 0$

$$I(t) = Q(1 - \theta t) - at \quad (15)$$

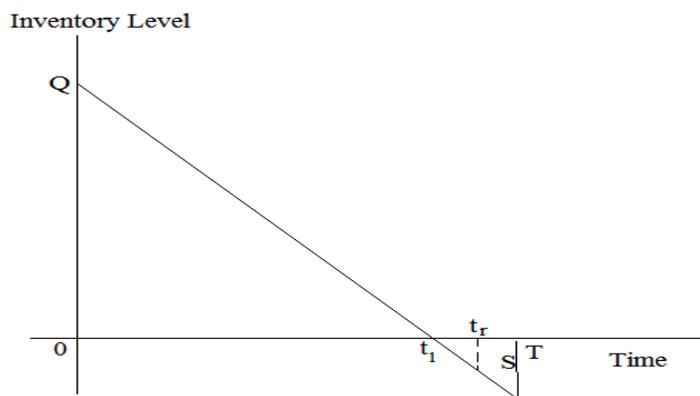


Fig 2

During the interval $[t_1, T]$ the backlogged quantity is governed by the following differential equation

$$I(t) = \left[a(T - t) + \frac{b}{2} (T^2 - t^2) - S \right] \quad (16)$$

The ordering cost is $OC=A$

$$(17)$$

The purchasing cost is $PC=P*(Q+S)$

$$(18)$$

The holding cost for the period $[0, t_1]$ is

$$HC = h \int_0^{t_1} I(t) dt$$

$$HC = h \left[Q \left(t_1 - \frac{\theta t_1^2}{2} \right) - \frac{a t_1^2}{2} \right] \tag{19}$$

The shortage cost for the period $[t_1, T]$

$$SC = C_1 \int_0^{t_1} I(t) dt$$

$$SC = C_1 \left[\frac{b}{6} (3t_1^2 T - T^3 - 2t_1^3) - \frac{a}{2} (T - t_1)^2 - S(T - t_1) \right] \tag{20}$$

Breaking cost: Total number of damageable units is

$$\theta(Q_0) = \int_0^{t_1} B(Q_0) dt = a_1(Q_0)^r t_1$$

Where $B(Q_0)$ is breaking rate when inventory level is Q and it can be substituted as follows

$$B(Q_0) = a_1(Q_0)^r \quad 0 < r < 1$$

As mentioned, selling price for each damaged item is $S_b = m_0 * P$, $0 < m_0 < 1$ which is a multiple of last purchasing cost. So total selling price for damageable item is

$$= \theta(Q_0)^r * m_0 * P$$

$$= a_1(Q_0)^r t_1 * m_0 * P \tag{21}$$

In this Case, annual interest earned is

$$IE_2 = sI_e \left[\int_0^{t_1} D(t) dt + (t_r - t_1)(a + bt_1) \right]$$

$$IE_2 = sI_e \left[\left(a t_1 + \frac{b t_1^2}{2} \right) + (t_r - t_1)(a + bt_1) \right] \tag{22}$$

The interest payable per cycle per unit time is $IP_2 = 0$ (23)

Case: 3.2.3 $t_1 = t_r$

During the positive stock period $[0, t_1]$, the inventory level decreases due to both demand and damageable items and will continue until the inventory level reaches zero. At the same time damageable items are replaced and permissible delay time (t_r) is also equal to t_1 . Again, the inventory level decreases due to demand and damageable items until an inventory level become zero. Finally, shortage is accumulated during (t_2, T) which is backlogged when $t=T$. The inventory level at the time t is governed by the following differential equations

$$\frac{dI(t)}{dt} + \theta I(t) = -D(t) \quad 0 \leq t \leq t_1$$

With the boundary conditions $I(t)=Q$

$$I(t) = Q(1 - \theta t) - at \tag{24}$$

$$\frac{dI(t)}{dt} + \theta I(t) = -D(t) \quad t_1 \leq t \leq t_2 \tag{25}$$

With the boundary conditions $I(t_1) = \theta Q$

$$I(t) = a(t_1 - t) + b(t_1^2 - t^2) + \theta Q e^{\theta t_1} \tag{26}$$

$$\frac{dI(t)}{dt} = -D(t) \quad t_2 \leq t \leq T \tag{27}$$

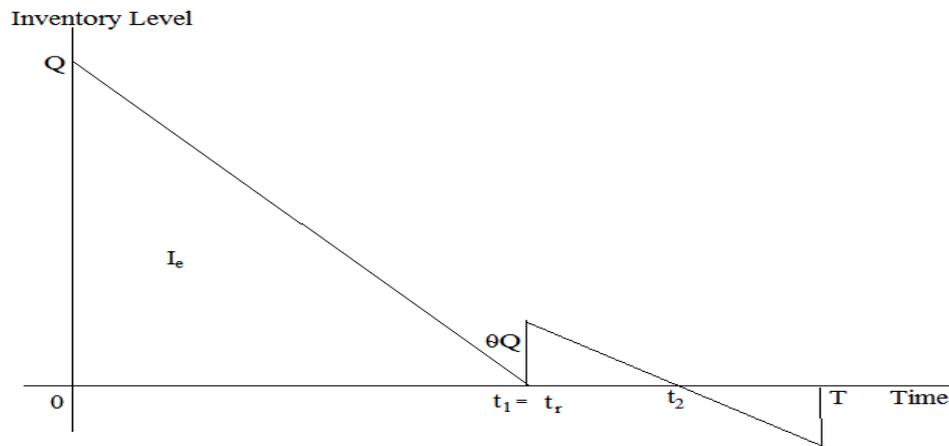


Fig 3

With the boundary conditions $I(t_2) = 0, I(T) = -S$

$$I(t) = \left[a(T - t) + \frac{b}{2}(T^2 - t^2) - s \right] \tag{28}$$

The ordering cost is $OC=A$

$$\tag{29}$$

The purchasing cost is

$$PC = P(Q + S) \tag{30}$$

The holding cost for the period $[0, t_2]$ is

$$HC = h \int_0^{t_2} I(t) dt$$

$$HC = h \left[Q \left(t_1 - \frac{\theta t_1^2}{2} \right) - \frac{a t_1^2}{2} - \frac{a(t_2 - t_1)^2}{2} + \frac{b}{3} (3t_1^2 t_2 - t_2^3 - 2t_1^3) + \theta Q e^{\theta t_1} (t_2 - t_1) \right] \tag{31}$$

The shortage cost for the period $[t_2, T]$ is

$$SC = C_1 \int_{t_2}^T I(t) dt$$

$$SC = C_1 \left[\frac{a}{2} (T - t_2)^2 + \frac{b}{6} (2T^3 - 3T^2 t_2 - t_2^3) - S(T - t_2) \right] \tag{32}$$

During the permissible delay period when the account is not settled the retailer sells the goods and continues to accumulate sales revenue and earn the interest with rate IE_3 . Therefore, the interest earned in the cycle period $[0, t_2]$ is

$$IE_3 = s I_e \int_0^{t_2} D(t) dt$$

$$IE_3 = s I_e \left(a t_1 + \frac{b t_1^2}{2} \right) \tag{33}$$

The interest payable is

$$IP_3 = 0 \tag{34}$$

So, the total variable cost per unit time is

$$TC_1 = \frac{1}{T} [OC + PC + HC + SC + IP_1 - IE_1] \tag{35}$$

$$TC_2 = \frac{1}{T} [OC + PC + HC + SC - IE_3 + IP_3 - \text{Cost of D.items}] \tag{36}$$

$$TC_3 = \frac{1}{T} [OC + PC + HC + SC - IE_2 + IP_2] \tag{37}$$

$$TC_1 = \frac{1}{T} \left\{ A + P * (Q + S) + h \left[Qt_r \left(1 - \frac{\theta t_r}{2} \right) - \frac{at_r^2}{2} + \frac{(a + bt_r)}{2} (t_1 - t_r)^2 - \frac{1}{\theta} [Q(1 - \theta t_r + \theta) - at_r] (e^{\theta(t_r-t_1)} - 1) \right] \right. \\ \left. + C_1 \left[\frac{a}{2} (T - t_1)^2 + \frac{b}{6} (2T^3 - 3T^2 t_1 + t_1^3) - S(T - t_1) \right] \right. \\ \left. + PI_p \left[-\frac{(a + bt_r)}{2} (t_1 - t_r)^2 - \frac{1}{\theta} (Q(1 - \theta t_r + \theta) - at_r) (e^{\theta(t_r-t_1)} - 1) \right] - sI_e \left[at_r + \frac{bt_r^2}{2} \right] \right\}$$

$$TC_2 = \frac{1}{T} \left\{ A + P(Q + S) + h \left[Q \left(t_1 - \frac{\theta t_1^2}{2} \right) - \frac{at_1^2}{2} \right] + C_1 \left[\frac{b}{6} (3t_1^2 T - T^3 - 2t_1^3) - \frac{a}{2} (T - t_1)^2 - S(T - t_1) \right] \right. \\ \left. - sI_e \left[\left(at_1 + \frac{bt_1^2}{2} \right) + (t_r - t_1)(a + bt_1) \right] - a_1 (Q_0)^r t_1 m_0 P \right\}$$

For minimizing the total relevant cost per unit of time the approximate optimal value of T and t₁ can be obtained by solving the following equations.

$$\frac{\partial TC_i}{\partial T} = 0, \frac{\partial TC_i}{\partial t_1} = 0 \quad i = 1,2,3. \tag{38}$$

Provided that above equations satisfies the following conditions

$$\frac{\partial^2 TC_i}{\partial T^2} > 0, \frac{\partial^2 TC_i}{\partial t_1^2} > 0 \quad i = 1,2,3. \tag{39}$$

$$\left(\frac{\partial^2 TC_i}{\partial T^2} \right) \left(\frac{\partial^2 TC_i}{\partial t_1^2} \right) - \left(\frac{\partial^2 TC_i}{\partial T \partial t_1} \right)^2 > 0 \quad i = 1,2,3. \tag{40}$$

$$\frac{\partial TC_1}{\partial T} = -\frac{1}{T^2} \left\{ A + P * \left[Q - at_1 - \frac{b}{2} t_1^2 \right] \right. \\ \left. + h \left[Qt_r \left(1 - \frac{\theta t_r}{2} \right) - \frac{at_r^2}{2} + \frac{(a + bt_r)}{2} (t_1 - t_r)^2 - \frac{1}{\theta} [Q(1 - \theta t_r + \theta) - at_r] (e^{\theta(t_r-t_1)} - 1) \right] \right. \\ \left. + C_1 \left[\frac{a}{2} t_1^2 + \frac{b}{6} t_1^3 + St_1 \right] + PI_p \left[-\frac{(a + bt_r)}{2} (t_1 - t_r)^2 - \frac{1}{\theta} (Q(1 - \theta t_r + \theta) - at_r) (e^{\theta(t_r-t_1)} - 1) \right] \right. \\ \left. - sI_e \left[at_r + \frac{bt_r^2}{2} \right] \right\} + \frac{Pb}{2} + C_1 \left[\frac{a}{2} + \frac{b}{2} (4T - 3t_1) \right]$$

$$\frac{\partial TC_1}{\partial t_1} = \frac{1}{T} \left\{ -P(a + bt_1) + (h + PI_p) \left[-(a + bt_r)(t_1 - t_r) + \frac{1}{\theta^2} [Q(1 - \theta t_r + \theta) - at_r] (e^{\theta(t_r-t_1)}) \right] \right. \\ \left. + C_1 \left[a(T - t_1) + \frac{b}{2} (-T^2 + t_1^2) + S \right] \right\}$$

$$\frac{\partial TC_2}{\partial T} = -\frac{1}{T^2} \left\{ A + P \left(Q - at_1 - \frac{bt_1^2}{2} \right) + h \left[Q \left(t_1 - \frac{\theta t_1^2}{2} \right) - \frac{at_1^2}{2} \right] + C_1 \left[\frac{b}{2} t_1^3 + \frac{a}{2} t_1^2 - St_1 \right] \right. \\ \left. - sI_e \left[\left(at_1 + \frac{bt_1^2}{2} \right) + (t_r - t_1)(a + bt_1) \right] - a_1 (Q_0)^r t_1 * m_0 * P - C_1 \left[\frac{bt_1^3}{3} - \frac{at_1^2}{2} \right] \right\} + \frac{Pb}{2}$$

$$- C_1 \left[\frac{a}{2} + \frac{b}{2} (4T - 3t_1) \right]$$

$$\frac{\partial TC_2}{\partial t_1} = \frac{1}{T} \left\{ -P(a + bt_1) + h [Q(1 - \theta t_1) - t_1 a] + C_1 [b(t_1 T - t_1^2) + a(T - t_1) + S] - sI_e (b(t_r + t_1) - 2bt_1) \right. \\ \left. - a_1 (Q_0)^r * m_0 * P \right\}$$

$$\begin{aligned} \frac{\partial TC_3}{\partial T} &= -\frac{1}{T^2} \left\{ A + P * \left(Q - at_1 - \frac{\theta b^2}{2} \right) \right. \\ &\quad \left. + h \left[Q \left(t_1 - \frac{\theta t_1^2}{2} \right) - \frac{at_1^2}{2} - \frac{a(t_2 - t_1)^2}{2} + \frac{b}{3} (3t_1^2 t_2 - t_2^3 - 2t_1^3) + \theta Q e^{\theta t_1} (t_2 - t_1) \right] \right. \\ &\quad \left. + C_1 \left[\frac{a}{2} t_2^2 - \frac{b}{6} t_2^3 + St_2 \right] - sI_e \left(at_1 + \frac{bt_1^2}{2} \right) \right\} + \frac{Pb}{2} + C_1 \left(\frac{a}{2} + \frac{b}{2} (4T - 3t_2) \right) \\ \frac{\partial TC_3}{\partial t_1} &= \frac{1}{T} \left\{ -P(a + bt_1) + h[a(t_1 - t_2) + 2b(t_2 t_1 - t_1^2) + \theta Q e^{\theta t_1} (\theta t_2 + \theta t_1 + 1)] + h(Q(1 - \theta t_1) - at_1) \right\} \\ \frac{\partial^2 TC_1}{\partial T^2} &= \frac{2}{T^3} \left\{ A + P * \left[Q - at_1 - \frac{b}{2} t_1^2 \right] \right. \\ &\quad \left. + h \left[Qt_r \left(1 - \frac{\theta t_r}{2} \right) - \frac{at_r^2}{2} + \frac{(a + bt_r)}{2} (t_1 - t_r)^2 - \frac{1}{\theta} [Q(1 - \theta t_r + \theta) - at_r] (e^{\theta(t_r - t_1)} - 1) \right] \right. \\ &\quad \left. + C_1 \left[\frac{a}{2} t_1^2 + \frac{b}{6} t_1^3 + St_1 \right] + PI_p \left[-\frac{(a + bt_r)}{2} (t_1 - t_r)^2 - \frac{1}{\theta} (Q(1 - \theta t_r + \theta) - at_r) (e^{\theta(t_r - t_1)} - 1) \right] \right. \\ &\quad \left. - sI_e \left[at_r + \frac{bt_r^2}{2} \right] \right\} + C_1 2b \\ \frac{\partial^2 TC_1}{\partial t_1^2} &= \frac{1}{T} \left\{ -Pb - (h + PI_p) \left[(a + bt_r) + \frac{1}{\theta^3} [Q(1 - \theta t_r + \theta) - at_r] (e^{\theta(t_r - t_1)}) \right] + C_1 (a + bt_1) \right\} \\ \frac{\partial^2 TC_2}{\partial T^2} &= \frac{2}{T^3} \left\{ A + P \left(Q - at_1 - \frac{bt_1^2}{2} \right) + h \left[Q \left(t_1 - \frac{\theta t_1^2}{2} \right) - \frac{at_1^2}{2} \right] + C_1 \left[\frac{b}{2} t_1^3 + \frac{a}{2} t_1^2 - St_1 \right] \right. \\ &\quad \left. - sI_e \left[\left(at_1 + \frac{bt_1^2}{2} \right) + (t_r - t_1)(a + bt_1) \right] - a_1 (Q_0)^r t_1 * m_0 * P - C_1 \left[\frac{bt_1^3}{3} - \frac{at_1^2}{2} \right] \right\} - 2bC_1 \\ \frac{\partial^2 TC_2}{\partial t_1^2} &= \frac{1}{T} \left\{ -Pb - h[Q\theta + a] + C_1 [b(T - 2t_1) - a] + sI_e b \right\} \\ \frac{\partial^2 TC_3}{\partial T^2} &= \frac{2}{T^3} \left\{ A + P * \left(Q - at_1 - \frac{\theta b^2}{2} \right) \right. \\ &\quad \left. + h \left[Q \left(t_1 - \frac{\theta t_1^2}{2} \right) - \frac{at_1^2}{2} - \frac{a(t_2 - t_1)^2}{2} + \frac{b}{3} (3t_1^2 t_2 - t_2^3 - 2t_1^3) + \theta Q e^{\theta t_1} (t_2 - t_1) \right] \right. \\ &\quad \left. + C_1 \left[\frac{a}{2} t_2^2 - \frac{b}{6} t_2^3 + St_2 \right] - sI_e \left(at_1 + \frac{bt_1^2}{2} \right) \right\} + C_1 2b \\ \frac{\partial^2 TC_3}{\partial t_1^2} &= \frac{1}{T} \left[-Pb - h \left((a + 2b(t_2 - 2t_1)) + (2 + \theta t_2 + \theta t_1) \theta^2 Q e^{\theta(t_1)} \right) \right] \end{aligned}$$

IV. NUMERICAL EXAMPLES

The numerical example is given below.

Example 3.3.1

Let A=150, a=1500, b=0.25, P=12, s=15, C₁=8, θ=0.001, I_p=0.10, I_e=0.12, t_r=0.35, h=0.15 in appropriate units. The optimal values are $t_1 = 0.49(0.4935)$, Q=525, T=0.95(0.9543) and TC=13173(1317.62).

Example 3.3.2

Let A=150, a=1500, b=0.25, P=12, s=15, C₁=8, θ=0.001, I_p=0.10, I_e=0.12, t_r=0.55, h=0.15, r=0.002, m₀=7 in appropriate units. The optimal values are $t_1 = 0.50(0.5021)$, Q=826, T=0.57(0.5675) and TC=17360(17360.81).

Example 3.3.3

Let A=150, a=1500, b=0.25, P=12, s=15, C₁=8, θ=0.001, I_p=0.10, I_e=0.12, t_r=0.55, h=0.15 in appropriate units. The optimal values are $t_1 = 0.55$, Q=826, T=0.63(0.6259) and TC=15667(15667.12).

VI. CONCLUSION

In this paper, an inventory model is developed in which the optimal cycle time is determined to minimize the total inventory cost. The shortages are allowed and are completely backlogged. The proposed model is discussed in three cases. Finally, numerical examples are given to illustrate the model.

REFERENCES

- [1]. Goyal S K (1985) "Economic order quantity under conditions of permissible delay in payments", J Operation research scientific society 36:335-338.
- [2]. Jayjayanti Ray "A non linear EOQ model with the effect of trade credit", International journal of non linear Science Vol-17(2014) No-2 PP 135-144.
- [3]. Mehdi Sajadifar and AhmadMavaji "An inventory model with demand dependent replenishment rate for damageable item and shortage" International conference on industrial engineering and operations management bali, Indonesia 7-9,2014.
- [4]. Mukesh Kumar, Anand chauhan and Rayat Kumar "A deterministic inventory model for deteriorating items with price dependent demand and time varying holding cost under trade credit", International Journals of soft computing and engineering ,Vol-2,2012.
- [5]. Palanivel M and Uthayakumar R "An EOQ model for non instantaneous deteriorating items with power demand , time dependent holding cost, partial backlogging and permissible delay in payments", International journal of Mathematical Computational, physical and quantum engineering vol-8 2014.
- [6]. Thangam A "Retailers inventory system in atwo level trade credit financing with selling price discount and partial order cancellations", journals of industrial engineering international, 2014.

Startups in India: A Study of Venture Capital Firms in Rajasthan

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Abstract

In the last few years, the growth of startups in India has taken off and has matured. Driven by a number of variables like ample funds, infrastructure, consolidation activities by a number of firms, evolving technology space and a burgeoning demand within the domestic market has led to the emergence of startups. The numbers on startups speak volumes about the emergence of startups — it is projected that by 2020 there will be 11,500 firms from 3,100 startups in 2014. The trend is revolutionary. And it's going to change the way the markets are working today in India. In just a span of four years i.e. 2011 to 2014 the amount of venture capital and private equity has increased to US\$ 1,818 mn. from US\$ 13 mn. There are a number of factors that attract foreign investors to India. However, the biggest factor can be stated as the growth of consumers with high level of disposable income in their hands. In this present study the researcher had tried to evaluate the scenario of venture capital firms in the state of Rajasthan and future prospects of the same. Primary and secondary data is being used for the same.

Keywords: Startups, Venture capital firms, Rajasthan.

Introduction

Meaning of Startup

Any organization can be stated as 'Startup' which:

- Is Established for 3 or less years
- Is a venture or a partnership at entrepreneurial level
- Engages in development, production or distribution of new products, processes or services
- Is not older than five years
- Annual revenue is up to 25 cr.

Because of globalization and headway in innovation rivalry is expanding step by step that is the reason as of late the independent work cognizance among undergrads are expanding and the understudies are more averse to depend on guardians or schools or sit tight for circumstances. Rather, they tend to step up with regards to search for new possibilities for themselves. Nation like India which is seventh-greatest nation by territory and the second-most crowded nation with more than 1.2 billion individuals and it is notable that expansive populace prompts to substantial work weight in Indian culture so it is need of our hour to create entrepreneurial aptitude among individuals so they can't exclusively depend on employment and they can begin their own business and Indian government has dispatch Startup India to bolster moving business visionaries **Sharif (2015)**. A considerable measure of elements, including the globalization and ascent of IT industry in the 90s was significantly in charge of the ascent of business enterprise in India. Today, Indian Economy is experiencing an inestimable remodel with new procedures moving into the

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market underlining and improving the part and commitment of new businesses **your story (2016)**. To make responsiveness and organizing an entrepreneurial situation, a great deal of accentuation ought to now be given to making foundation for coaching new companies. Different partners, for example, the administration, organizations, instructive establishments and others are and ought to hold hands to construct a superior ecosystem for youngsters.

A new business or startup or start-up is a youthful organization that is recently starting to create. New companies are generally little and initially financed and worked by a modest bunch of authors or one person. These organizations offer an item or administration that is not at present being offered somewhere else in the market, or that the originators accept is being offered in a mediocre way. In the early stages, new businesses' regular consumption has a tendency to surpass their incomes as they work on creating, testing and showcasing their thought. In that capacity, they regularly require financing. New companies might be supported by regular independent venture advances from banks or credit unions, by state-supported. Private venture Administration advances from nearby banks, or by awards from not-for-profit associations and state governments. New companies typically have been neighborhood endeavors keep running by private venture business people. Today, with Internet's worldwide achieve, business people can tap organizes and build up Start-ups work the whole way across the world. **KPMG (2016)**

Worldwide IT advancement groups and different sorts of human capital, Start-Ups are rising in zones past the run of the mill US rearing grounds of Silicon Valley, Boston, New York, Washington D.C. what's more, Dallas. An expansion in specialized development and start-up action is presently additionally being found in urban communities, for example, Bangalore, Helsinki, London, Shanghai, Singapore, Sydney, Tel Aviv, Toronto and Zurich India has the fourth biggest biological system on the planet for Start-ups, after the US, the UK and Israel, with a quickly advancing environment, driven by a to a great degree youthful, differing and comprehensive entrepreneurial scene. **EY (2015)** India is among the main five nations on the planet regarding new companies. US positions number one on the rundown with 83,000+ new businesses. It is normal that if the present pattern proceeds, inside 1-2 years India will achieve the second spot after the US and will be among the top Asian start-up biological systems, alongside China and South-east nations. As indicated by the NASSCOM India Start-up Story 2014, around 11,500 Start-ups will come up in the nation by 2020, making more than 2.5 lakh occupations, contrasted with the current 75,000 employments. As per a report by I Spirit, the Top 30 programming item Start-ups in India are presently esteemed at USD 10.25 billion, a 20% expansion from October 2014 – these Start-ups make utilization of 21,200 individuals and has 80% of their client base abroad. As indicated by ASSOCHAM, India's Start-ups are relied upon to deliver no less than a score of very rich people and numerous more tycoons in the coming five years, with web based business, money related administrations and innovation driven fields producing most extreme premium. **Financial Insight (2017)**

State of Venture Capital in India

As far as India is concerned, the development of venture capital was a gradual process. It was somewhere in the year 1997 i.e. post liberalization when the Indian government start focusing on the budding entrepreneurs and also started to sponsor them by the way of institutional financing. **Hellmann et al (2015)** as a matter of fact, even earlier than 1997 i.e. in 1972 a committee was constituted to study the Development of small and medium

entrepreneurs, headed by R.S. Bhatt, and the committee recommended that if the problems of the new and budding entrepreneurs will not be addressed then it will be difficult to invite new capital in the country.

On the recommendation of the above mentioned committee a Risk Capital Foundation was established by the government of India in the year 1975, this was not an independent agency; rather it was sponsored by Industrial Finance Corporation of India (IFCI). This foundation was established to promote the new ventures in the country by providing technical and financial assistance, then again in the year 1976 the Industrial development Bank of India started the Seed Capital Scheme which played a vital role in the development of venture capital in the country. **Mellander et al (2012)**

Literature Review

Sabrinathan (2017) in paper "Venture Capital and Private Equity Investing in India –An Exploratory Study" concluded that there is a multifold growth of venture capital in the country and in the current scenario most of the venture capitalist are having sophisticated tools of managing their funds with high returns. VC has the capacity to support enterprises across a range of sectors that have the potential and promise by providing funding across their various stages of development. Venture capital industry has evolved into being a source of growth financing for innovative and technology led businesses. The analysis also revealed that the market for managing VC funds is highly competitive with fairly high rates of entry and exit of fund management entities.

Shetty (2017) concluded that when compared to venture financing in USA and China, Indian venture capital sector performance is relatively less but taking the Indian economy as whole there is substantial growth and rapid investment momentum mainly in the consumer technology sector making even more attractive for the investors. Factors like better fiscal initiatives, adequate training and motivation are some major elements that will help venture capital industry become more successful and flourish in India.

Rani and Katyal (2015), stated that Venture Capitalists in the country are biased toward technology companies with 68% of investments made in this sector. Other sectors include healthcare and education accounting for 9% and 7% of total investments respectively. The VC industry in India has had a somewhat frustrating run. With too much money chasing too few deals, Indian venture capital is struggling.

Viren Chavda (2014), concluded that there is an urgent need for encouragement of risk capital in India, as this would widen the industrial base of high tech industries and promote the growth of technology.

Research Objectives

1. To access and evaluate the designing of an appropriate business plan.
2. To analyze and evaluate the degree of involvement by the venture capital firm for pre and post implementation of the project such as market strategy, product promotion, advertisement etc.
3. To access, evaluate and analyze the exit behavior of venture capital firm.

Research Hypothesis

Hypothesis I

H1: There is a significant difference in the long-term vision of entrepreneurs in Rajasthan and the long-term vision as required by a venture capitalist.

H0: There is no difference in the long-term vision of entrepreneurs in Rajasthan and the long-term vision as required by a venture capitalist.

Hypothesis II

H1: The presence of uniqueness in product and services in investment proposals from Rajasthan is as per the requirement of Venture Capitalist.

H0: The presence of uniqueness in product and services in investment proposals from Rajasthan is not as per the requirement of Venture Capitalist.

Research Methodology

Sampling frame

Sample framing is the listing of the target population from which sample is selected. The population for the study is all the venture capital firms functioning in the state of Uttar Pradesh.

In this present study researcher had tried to enumerate all the sampling units, but due to the related constraints all the sample units are not contacted.

Sampling unit

Sampling units are the number of elements which are drawn from the population for the purpose of study, in the lieu of the same the sampling units for the present study are the company executives which are working in the sampled organizations by using the prescribed method of sampling.

Sample Size

Size of the sample is basically the number of employees in the sample. In this present study the total size of the sample was 100 company executives.

Population: According the data of CII (*Report published in December 2017*) and CMIE (2015) the total number of venture capital companies in the state of Rajasthan are 176 and the total number of executives (*middle level management*) working in these companies are approximately 943. IT /ITES and service sector forms are selected for the present study.

Parameters of Hypothesis Testing:

The parameters of hypothesis testing can be stated as follows:

Hypothesis 1	Hypothesis 2
Leadership qualities	Uniqueness (Different from existing products)
Integrity and commitment	Existence of Prototype
Long term vision	Existence of patent
Commercial orientation	Superior (Better than existing products)
Technical expertise	
Financial expertise	
Knowledge of market	
Ability to handle a team	

All the above given parameters are being tested against the variables of age of the company after becoming a venture capital firm and starting an actual market operation for their respective product or service. The other variable is the funds requirement of the firm against a respective business in the state.

For this present study, a structured questionnaire (Annexure I) was formed, which consists of the following sections:

- Section I: consists of the questions related to the demographic information of the respondents, like their age, gender, education, etc. and basic information pertaining to study

- Section II: contains the questions regarding the information about the strategic issues related to the industrial products.
- Section III : consists of questions regarding the competitive environment of the sample units

Result of Data Analysis

Hypothesis I

Table: Summary of ANOVA Results H1

On the Basis of Age of the Company	F	Sign
Leadership qualities	.155	.926
Integrity and commitment	.688	.559
Long term vision	.660	.577
Commercial orientation	.365	.778
Technical expertise	.889	.446
Financial expertise	4.408	3.005
Knowledge of market	3.445	3.017
Ability to handle a team	.316	.814
On the Basis of Fund Requirements		
Leadership qualities	3.098	3.016
Integrity and commitment	.534	.711
Long term vision	.983	.817
Commercial orientation	1.885	1.112
Technical expertise	1.117	1.348
Financial expertise	1.443	1.219
Knowledge of market	3.445	.017
Ability to handle a team	.316	.814

Interpretation

As given in the above table of ANOVA analysis, in most of the cases the sign. Value is more than the 'F' value which shows that there is less amount of variation among the two. This amount of variation shows that the difference in the long-term vision of entrepreneurs in Uttar Pradesh and the long-term vision as required by a venture capitalist is less. In case of the age of the company, significance amount of variation can be seen in case of commercial orientation, technical expertise and team handling, in rest of the cases the amount of variation is less.

On the other hand, in case of fund requirement, the significance amount of can be seen in case of market knowledge and team handling. These differences are not so significant that the respective hypothesis can be rejected on the basis of the same. In order to form the long term vision of the entrepreneurs from Uttar Pradesh is concerned it has to be as per the requirement of the venture capitalist as this will give boost to the development of the industry and business in the state. The above analysis shows that commitment, long term vision, financial expertise and market knowledge show the minimum amount of variation in the test values, and this is an indication that long term vision of the entrepreneurs of Uttar Pradesh is as required by the respective venture capitalist.

Result

In light of the above interpretation it can be inferred that the difference in the long-term vision of entrepreneurs in Uttar Pradesh and the long-term vision as required by a venture

capitalist is less and hence the null hypothesis can be rejected and null hypothesis can be accepted.

Hypothesis 2

Table: Summary of ANOVA Results H2

On the Basis of Age of the Company	F	Sign
Uniqueness (Different from existing products)	.155	.926
Existence of Prototype	.688	.559
Existence of patent	.660	.577
Superior (Better than existing products)	.365	.778
On the Basis of Fund Requirement		
Uniqueness (Different from existing products)	3.098	.016
Existence of Prototype	.534	.711
Existence of patent	.983	.417
Superior (Better than existing products)	1.885	.112

Interpretation

This is a well known fact that the type and kind of innovation in the products and services are one of the major concerns for the venture capitalist. The researcher had tried to know the level of innovation in the respective products and services and also to analyze the same with the expectations. The result of ANOVA shows that in case of age of the company uniqueness has the significant difference i.e. the value of sign. is much more than the 'F' value and in all other cases the difference is not significant. Then in case of requirement of funds superiority and uniqueness are the components that are having the maximum difference. In all other cases the amount of variation is less. The level of variation that is observed in the values is the result of various reasons like the development and growth of technology in the state of Uttar Pradesh, keenness of the government and related agencies in promoting the said ventures, quality and opportunities of higher education in the state, support of the government machinery in processing the respective projects. In the light of the above facts it can be said that the environment of Uttar Pradesh is capable of supporting the said ventures but still there is a requirement to raise the level of innovation in the said products and services so as to attract venture capitalists in the state.

Result

In light of the above interpretation it can be inferred that there is a presence of uniqueness in product and services in investment proposals from Uttar Pradesh is as per the requirement of Venture Capitalist and hence the null hypothesis stands true and accepted.

Observations and Findings

Entrepreneurs were asked to rate the following problems faced in raising equity capital; Insufficient funds. Lack of trust, High cost of funds, Time consuming process. Requirement of guarantee. Excessive paper work, Requirement of reference and Low chances of success in obtaining finance. The findings show that entrepreneurs face a number of problems in raising equity capital. Out of the above problems, entrepreneurs in Uttar Pradesh face maximum problems in convincing the providers of capital. Statistical test on the above features show that entrepreneurs face problems in raising equity capital due to the above features. Statistical tests also showed that the problem faced in raising equity capital does not differ age-wise, location-wise and gender-wise.

Entrepreneurs were asked to rate the following problems faced in raising debt capital; Insufficient funds. Lack of trust. High cost of funds, Time consuming process. Requirement of collateral. Excessive paper work, Requirement of reference and Low chances of success in obtaining finance. Responses from the entrepreneurs show that they face a number of problems in raising debt capital. Out of the above problems, entrepreneurs in Uttar Pradesh face maximum problems in providing collateral/guarantee while raising debt capital. Statistical test on the above features show that entrepreneurs face problems in raising debt capital due to the above features. Also the problem faced in raising debt capital does not differ age-wise, location-wise and gender-wise.

Conclusion

Venture capital financing differs from traditional methods of raising funds such as equity and debt. Venture capitalist demands a higher cost for funds as they undertake a substantially higher risk. Entrepreneurs should evaluate the cost of venture capital funding with due consideration of the risk undertaken by a venture capitalists and also acknowledge that Venture capitalist are not only providing the funds but they can also add value to the venture by their hand holding approach. To sum up venture capitalists not only provides funds but also monitors and advises an entrepreneur, in lieu of which venture capitalists demand a higher compensation. Thus, while evaluating the cost of venture capital, entrepreneurs must consider the additional benefits and risk borne by the venture capitalist. Venture capitalists engage in information collection and monitoring once the project is under way. Venture capitalist interferes in business decision with an aim to make the venture successful. A successful venture will provide benefits to both the venture capitalists and entrepreneur. There are number of aspects related the financial, technical, marketing, manpower and operations and it is not necessary that entrepreneur may be able handle all these on their own.

References

1. <https://yourstory.com/2016/02/government-definition-startup>
2. Omid Sharifi, Bentolhoda Karbalaei Hossein (2015), Understanding the Financing Challenges faced By Startups in India, International Journal Of Science Technology and Management Vol No 4 Special Issue No 01.
3. KPMG private equity review 2016,
4. EY Global venture capital trends 2015
5. Financial insight : venture capital, 2017
6. Hellmann, Thomas and Veikko Thiele, (2015), Friends or foes? The interrelationship between angel and venture capital markets, Journal of Financial Economics, 115 (3), pp 639–653
7. Mellander, Charlotta and Richard Florida (2012), The Rise of Skills: Human Capital, the Creative Class and Regional Development, CESIS Electronic Working Paper Series No 266, The Royal Institute of Technology Centre of Excellence for Science and Innovation Studies
8. G.Sabrinathan (2017), Venture Capital and Private Equity Investing in India –An Exploratory Study, IIMB-WP N0. 542.
9. Kishan Kumar Shetty (2017) , A Comparative Study on Impact of Venture Capital Financing on Startups in India , International Conference on Education, Humanities and Management (ICEHM-17) March 14-15, 2017 Dubai (UAE).

- 10.** Pallavi Rani and Hitesh Katyal (2015), Venture Capital in India: Sector-Wise Analysis, International Journal of Research & Development in Technology and Management Science –Kailash, ISBN -1-63102-450-7, Volume –21, Issue 6.
- 11.** Viren Chavda (2014) , An Overview on Venture Capital Financing in India, RESEARCH HUB –International Multidisciplinary Research Journal, ISSN: 2349-7637 (Online), Volume-1, Issue-2.

A Study on Relationship between Appearance Conscious and Purchase Intention towards Green Cosmetics

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Abstract

It is important to the marketers to understand the consumer's intention to purchase green cosmetics products in this regards to know the relationship between appearance conscious and purchase intention towards green cosmetic products. The purpose of the study is to know the relationship between them. Correlation analysis has been used for this study. The results of this study indicate that both have the significant high positive relationship.

Keywords: appearance conscious, green cosmetic products, correlation and positive relationship

Introduction

Consumption of personal care products is a buying behavior that satisfies an individual's need for beauty and care of his/her appearance (Todd, 2004). According to Lee and Lee (1997) appearance consciousness is the driving force that leads people to be interested in clothing and cosmetics that express or differentiate their images. Personal care products influence consumers' appearances and people use such products to manage their appearances (Marcoux, 2000). People who try to improve their general appearance and desire to keep a youthful look ask for organic, chemical-free cosmetics and health care products. A recent study of Kim and Chung (2011) highlights the importance of appearance consciousness as a predictor of consumers' attitudes toward organic personal care products.

The term organic is currently used to describe various sustainable agricultural and food items, cosmetics, bath and body care products, beverages, toys, furniture, textiles, mattresses and many other products. In the most basic of definitions, according to the Merriam-Webster's dictionary, organic means "Relating to, or derived from living organisms" (<http://www.merriam-webster.com/dictionary/organic>). According to Essoussi and Zahaf (2008), the term organic is rooted in "bio" from Greek "bios" which means life or way of living. Scientifically, organic means any substance that contains carbon. But when we refer organic with respect to consumer goods, the meaning is different. When it comes to food, the definition of organic is totally clear, thanks to the USDA's (United States Department of Agriculture) National Organic Program standards that define how organic food is grown, raised, processed and sold. However, when it comes to cosmetics, body care, or personal care products, the definitions are not so clear since FDA (U.S. Food and Drug Administration) does not define or regulate the term organic (<http://usdaorganicskincare.com>). Organic cosmetics can be defined as cosmetic products that are made with organic ingredients, without the use of harsh chemicals like pesticides,

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fungicides, herbicides, and fertilizers (http://green.wikia.com/wiki/Organic_cosmetics). According to the Merriam-Webster's dictionary, "organic produce" refers to products produced by using feed or fertilizer of plant or animal origin without the use of chemically formulated fertilizers, growth stimulants, antibiotics or pesticides (<http://www.merriam-webster.com/dictionary/organic>). In the current study organic cosmetics are defined according to the definition of Merriam-Webster's dictionary.

Review of Literature

Kim and Chung (2011) Appearance consciousness is found to be an important predictor of consumers' attitudes toward organic personal care products.

Rybowska (2014) there is little research about consumer behavior regarding natural cosmetics, or consumers' purchase decisions and attitudes towards natural personal care products and cosmetics products. However, the rising popularity of natural cosmetics rises important

Questions for marketers, retailers and industry planners

Todd, (2004) Consumption of personal care products is a buying behavior that satisfies an individual's need for beauty and care of his/her appearance.

Marcoux, (2000) Personal care products influence consumers' appearances and people use such products to manage their appearances.

Lee and Lee (1997) appearance consciousness is the driving force that leads people to be interested in clothing and cosmetics that express or differentiate their images

Objective of the Study

To know the relationship between appearances conscious and green cosmetics purchase intention.

Methodology

Sample Area: Ariyalur and Perambalur districts of Tamil Nadu

Sampling Technique: Quota Sampling

Sample Size: 359

Statistical tools: Simple Correlation and descriptive has been used for this study.

Analysis

Table 1 shows the relationship between appearance conscious and Green cosmetics purchase intentions

Variable	Green Cosmetics purchase intention		
	N	r-value	p-value
Appearance Conscious	359	0.849**	0.001

****.** Correlation is significant at the 0.01 level (2-tailed).

From table-1 Correlation between appearance conscious and Green Cosmetics purchase intention

H₀-1: There is no significant relationship between appearance conscious and Green Cosmetics purchase intention

In order to verify the above hypothesis Correlation test was applied. The r-value is found to be 0.849 and P-value is 0.001 significant at 1 percent level. So the above hypothesis gets

rejected. The result reveals that appearance conscious positively correlated with Green Cosmetics purchase intention.

Finding of the Study

Appearance conscious has significant highly correlated with Green Cosmetics purchase intention.

Conclusion

This research concludes that there is strong relationship between appearance conscious and green cosmetics purchase intention. So this study recommended to the marketers to launch the more green cosmetics to focus the appearance concept.

References

1. Rybowska, A. (2014), "Consumers attitudes with respect to ecological cosmetic products", *Zeszyty Naukowe Akademi Morskiej w Gdyni*, Vol. 84, pp. 158-164.
2. Kim, H. and Chung,J., (2011) "Consumer purchase intention for organic personal care products", *Journal of Consumer Marketing*, Vol. 28, No. 1, pp.40-47.
3. Lee, M. and Lee, E. (1997), "A study on appearance interest and self-confidence of elderly women associated with demographic variables", *The Korean Society of Clothing and Textiles*, Vol. 21, pp. 1072-1081.
4. Marcoux, D. (2000), "Appearance, cosmetics, and body art in adolescents", *Dermatologic Clinics*, Vol. 18, No. 4, pp. 667-673.
5. Todd, A.M. (2004), "The aesthetic turn in green marketing", *Ethics & the Environment*, Vol. 9 No. 2, pp. 86-102.
6. Essoussi, L.and Zahaf, M. (2008) "Decision making process of community organic food consumers: an exploratory study", *Journal of Consumer Marketing*, Vol. 25, No. 2, pp. 95-104.
7. Definition of organic produce, 2011, retrieved from <http://www.merriam-webster.com/dictionary/organic>

Effect of Make in India

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Abstract

NDA Government has started 'Make in India' program to increase the production. Its main aim is to make India a factory of production on the map of the world so that the import may be lessened and dependence on the world may also be lessened. We will basically discuss on these subjects what was the impact of "Make in india" on India and its people? Is India ready to become a **Bazaar** or a factory? Is there any impact of "Make in India" on Indian economy? After having studied all the issues we would like to know what is the reality of the dreams our P.M Mr. Narendra Modi saw in Sept 2014 while launching "Make in India" Programmed? We would like to know what were the impacts of "Make in india" on FDI.I have tried to study through this paper , how much the Indian economy has grown or progressed ?After having studied all the realms, we would like to try to know about the reality of the dreams, our PM had seen in September 2014.

Keywords: Employment, Production, GST (Goods and Service Tax),

Introduction

Dr. Manmohan Singh, the then finance Minister in 1991, brought a drastic change by introducing economic reforms. At that time the part of the production was 30% of the total economy.

When PM Modi launched "Make in India" program in September 2014 production was 14% of the total GDP (Gross Domestic Product) many problems like land acquisition, Labour Law, inadequate infrastructure were there in Indian economy. If we talk about "Make in India", In November 2015 government eased FDI rules in 15 sectors. In December 2015, India was at 130th place in the world, according to the report of 'Ease of doing Business' by World Bank, It was published in October 2016. 8000 business delegates of 22 Nations were called to attend "Make in India" in fact 2016. 2500 bilateral meetings were held in it.If we look at the FDI between October 2014 to September 2016, it was US \$77.86 billion.

Literature Review

Sunday et al (2004) is their work "Explaining FDI inflow India, China and Caribbean, An extended neighborhood approach" tells us about FDI that it basically depends upon following economic indicators like market size, export intensity, institutions etc.

Klaus (2003) in his paper "FDI is emerging Economy" studied about the impacts of FDI and tactical and administrative impacts on FDI. He also tried to know how our country, with the help of emerging economy of the world would progress in the field of agriculture and investment.

We come to know from the above given literature review that technical changes in the Indian economy, which we see in the form of "Make in India" were essential for the progress of FDI if we look at the data of investment of the five major countries (Mauritius, Singapore Japan, UK and Netherland) between 2015-2016 to 2016-2017 all the countries except for Singapore increase their investment in India. Telecommunication and service sector saw the highest progress. we can conclude from it that production sector did not see

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as much progress as it was expected at the time of launching of 'make in India' whereas in construction activity it reduced to 12,478 Crore Rupees from 29,842 Crore Rupees but we can say about FDI that it gets affected due to some International reasons as well, thus we can conclude that FDI didn't have any impact on 'Make in India'. If we talk about the Indian economy, that target of manufacturing sector has been fixed 25% of the GDP by 2025. It will produce about 100 million new job opportunities.

Make in India is based upon mainly for pillars

1. New Process: Indian government has been trying to ease the process of business which will attract the FDI to India. A system through GST (Goods and Service Tax) has been set up in India. India has prepared a team named **Japan Plus** to boost the investment from Japan in India and help administratively in augmenting the investment. If we talk about the "Ease of doing" an index of World Bank 2017 India's position is 100th now which was at 133rd in 2016.

2. New Infrastructure: Indian government has been working on advanced technique and fast communication through Industrial corridors and smart cities programs. A project named "SKILL INDIA" has been started to increase skilled workers.

3. New Sector: The main attention of the government will be on 25 sectors through 'MAKE IN INDIA'. In which includes : Automobiles, Aviation, Biotechnology, Chemical Construction, Defense manufacturing, Electrical mechanics, Electronic systems, food processing, IT and BPM, Leather, Media and Entertainment, Mining, oil and gas pharmaceuticals, Port and shipping, Railways, Renewable energy, Road and Highways, space, Textile and Garments, Thermal Power, Tourism and Hospitality, Wellness etc. under the 'Make in India' all the sectors will prosper. Look at all sectors, we see that Roads and Highways sector has seen step progress in which east peripheral, Bharatmala are included. In Railways due to the progress of Metro trains it has now reached Lucknow and even Kochi as well. The project of Bullet train is also included in this scheme. If we look at space section, the sector is progressing at a good pace. **Antrix Corporation Limited** has launched 45 satellites of 19 countries into space. Our PM in 2015 has increased the budget of this sector by 50%. India has created history by establishing 104 satellites at a one go through PSLV-C37 in February 2017. Even in defense sector, Indigenous production is being promoted. India fulfills her 60% defense related requirements by import. Many companies of India are manufacturing defense related products under 'Make in India' and NOC (Not Objection Certificate) issued within 15 days for the purpose of export. Apart from it the growth rate of Pharma sector has been stipulated 15.92% under the National Health Protection Scheme. 100 million poor families will be provided health facilities.

4. New Mindset: As per the words of our Prime Minister "Let's think about making our product which has zero effect so that the manufacturer does not have any adverse effect on our environment." Which will help in producing a high quality product without polluting the environment. This type of Thinking apprise us of the insight that government is not only a ruling authority but also ready to work with private sector as well for the development of the country. This type of thinking comes out of a new ideology this helped in inviting the whole world to India for the production. This will help in making Indian economy strong.

If will look at the impact of all the four pillars then according to the report of FICCI-NASSCOM and EY “Future of jobs in India” it shows two major challenges of Indian economy. It tells that 17 million new people come to Indian Bazaar for the jobs every year out of which only 5.5 million people could get the jobs. Another report presented by the “Centre of monitoring India's Economy” (CMIE) tells that unemployment got doubled from July 2017 to April 2018. Now question arises that if jobs are not increasing which was one of motives of “Make in India.” then what were the reasons of getting jobs diminished? Why the target of, 100 million jobs does not look achievable.

If we study the data published by the International Labour Organisation (ILO) the position of unemployment in India get clear.



We can conclude from the above given data that the rate of unemployment was 3.52% in 2017 which was 0.01% more than that of 2016 and 0.11% more than that of 2014, it was the year that is 2014 when ‘Make in India’ program was started. Population of India was 1283.60 million in the year 2017 out of which 29,650 thousand peoples were unemployed. In the year 2016 the total population of the country was 1268.60 million and out of which 28,999 thousand peoples were employee.

Thus we can conclude from the above given data that unemployment is increasing with growth of population of the country. The proportion of unemployment has surpassed the proportion of the growth of population. Which is the matter of concern. The unemployment has increased especially after the implementation of “MAKE IN INDIA”. India is a young men's countries So it is essential to provide jobs to the youth of India. It is assumed that the progress of young generation is the progress of the country. It is most essential review the policies of “Make in India” to increase the opportunities of employment so that the purpose of “Make in India” may be served.

If we concentrate on the rate of growth of the country then we find that it is in a better position. That data provided by the Ministry of statistics and program implementation of (MOPI) tell.



The rate of economic growth of the quarter September 2016 which was a year after the start of 'Make in India' was 9.2% which reduced 5.6% in the same quarter in 2017. The reason for the reduction can be attributed to the demonetization. But in 2018 in the second quarter it touched 8.2% growth rate while it was 7.7% in the first quarter of this financial year. In 2017 in the second quarter the growth rate was 5.6 %. Reason for the rate of growth was due to household spending which reached at 8.6% from the 6.7%. During this time export increased to 12.7 % which increased at the rate of 3.6 % in the last quarter. If we look at GAV (Gross annual value) of the second quarter of 2018, which is GDP excluded of taxes it remained 8% which was 7.6% in the first quarter of 2018. If we look at industrial progress then production was at 18%, construction was at 7.9% and mining remained at the 3.2%.

From the point of progress, we find that 2016 was not good financial year. The rate of progress kept on falling continuously which lasted for the second qualities of 2017. After this GDP growth increased which is lasting even up to the second quarter of 2018, we can attribute this progress to the implementation of GST. Indian economy is progressing continuously after the implementation of GST, which is more than expectation.

If we look at the growth rate it seems that Indian economy is in active mode. But it has seen downfall in GDP from manufacturing point of view. It was 5942 Billion Rupee in the first quarter of 2018 which reduced 5690 Billion Rupee in the second quarter of 2018. It may be concluded that "Make in India" could not impress Indian economy as it was expected. Other factors are rather favorable for the growth of India economy. if we attach the employment to the economic growth even then it is not useful. The above given analysis shows that unemployment has increases with the augmentation of economic growth.

According to **Amitabh Kanth** (CEO of Niti Ayog) "If India wants to become a manufacturing hub then Chinese companies will have to be encouraged to start production in India. Both countries have political importance for each other because low cost, high technique is available near to India." **Kant**, says that during last 4 years in India the import of product of china has increased by 50%

We (India) imported the commodities of US \$76 billion from and exported the commodities of US \$13.3 billion to it. Thus India is highly dependent on China. India is a great Bazaar and China is a factory. A China like factory should be given special privileges. So that China may establish production units in India which will reduce Import of India from China. There will be a great saving in foreign exchange for India. China has a great role to play for "Make in India" if Chinese companies are invited to India for establishing their units itself in India then most of the production will be consumed in India which will help both the countries monetarily.

If we go through the nation of **Parliamentary Standing Committee of Commerce** 2017 regarding 'Make in India' this committee questioned on the implementation of this scheme as it could not impress upon the economy.

Apart from it the great American economist and Nobel Prize winner **Paul kurgnar** during his visit to India in March 2018 said that India need to develop the production sector. According to **Paul** "India lack in the manufacturing could work against it, as it does not have jobs essential to sustain the projected growth in demography. you have to feed jobs for people." The importance is given to creation of jobs and it is mandatory to pace up the production sector to enhance the job opportunities.

The same view and suggestion was given by American president **Barack Obama** on the eve of Republic day in 2015 in Indo-US business persons meeting. India focused on production tactics planning.

According to the report of Mckinsey Global Institute “**India Ascent**” 5 opportunities for growth and transformation” analyzed that India must not only appeal to the foreign investors on the ground of low cost but also attract them on the basis of public infrastructure friendly by making its Big Bazaar more competitive. There will be many reasons for the foreign investors to come in India which will help in comparing with the other countries. There will be enhancement in FDI.

If we talk about **Economic Survey 2018**, 10 sectors have been given importance which help increase in production and employment. Capital goods, Auto, Defense, Pharma, and Renewable Energy are mainly industrial sector. Government has shown possibilities of making it Global Champions. There are possibilities of having two digit growths in the sectors. Apart from these sectors Biotechnology, Chemical, Electronic system, Leather, Textile, Food processing, Gems and Jewellery, Construction, Shipping and Railways will be added to it which will be essential for the production and employment. These sectors have been identified for served focus order “Make in India” version 2.0. The emphasis is laid upon the promotion of production in “Economics survey” by identifying special sectors for version 2.0. Production is the main area of “Make in India.”

If the production is enhanced, all the other problems will be dispelled on its own. Apart from it, many companies have taken initiative in promoting indigenous products under “Make in India” **Bharat Earth Movers Limited (BEML) Limited** has produced India's first 20ST Electronics Drive Rear Dump Truck in September 2018. It will be helpful in mining sector. Apart from it, **Lockheed Martin** in collaboration with **Tata Advanced System Limited** will manufacture F16 Combat Plane under “Make in India” in India. **Samsung** a renowned mobile company has set up a unit in UP (Noida) which was inaugurated by the PM Narendra Modi and the Korean President Moon Jae-in. Samsung production will reach 120 million units from 67 million. it will provide job to 70,000 people under ‘Make in India’ program comes these following initiative Coast Guard Vessel **Vikram** (7 new generation Offshore Petrol vessel), Smartphone **Ivvo** of Britzo Communication Pvt. Ltd. and Madhepura Rail Coach Factory in Bihar, **Honor 7x** of Huawei etc.

All these examples show that India has been doing her work eagerly that is why PM of India inaugurated the unit of Samsung, a foreign company in India. The main aim of the government is to promote the production and create job opportunities. ‘Make in India’ has given strength to the indigenous companies that is why companies like Tata is ready to manufacture F-16 planes. After having been inspired from ‘Make in India’ many foreign companies are ready to involve with new techniques in India. **Mercedes-Benz’s** getting certificate to manufacturing BS-VI vehicles at Pune unit. We will migrate towards BS-VI from BS-IV vehicles directly which befit the parameters keeping environment pollution free.

There have been great changes in techniques due to ‘Make in India’ program. Need of the hour is to bring change in Indian economy through tactics. Only then the purpose of “Make in India” can be served successfully.

Conclusion

After analyzing all the data of all the sectors, keeping the purpose of 'Make in India' in mind, Economic Survey, the conclusion of great economists and tycoons, we can say that a lot of expectations were tinned with this 'Make in India' program while launching it but big result like increasing unemployment shows us otherwise results. But production in India by foreign companies tells us that 'Make in India' program is marching towards its goal. It may that its pace is somewhat slower but marching towards surety. 'Make in India' is playing its vital role. We wish bright future India for "Make in India.

Bibliography

Klaus E Meyer. Foreign Direct investment in Emerging Economies, 2005.

Soundhariya S. Make in India – Scheme For Transforming India. Retrieved from, 2015website:<http://www.worldwidejournals.com/gra/articles.php?val=MzY3MQ==&b1=265&k=67>

Iyare Sunday O, Bhaumik Pradip K, Banik Arindam Explaining FDI Inflows to India, China and the Caribbean: An Extended Neighborhood Approach, Economic and Political Weekly, 2004, 3398-3407

Dunning John H. Institutional Reform, FDI and European Transition Economies", International Business and Governments in the 21 Cambridge University Press, 2004, 1-34.

Dr. T. Vijayaragavan "Make in India and its Strength to Become India's Manufacturing Hub, International Journal of Engineering, Business and Enterprise Applications, (IJEBA), 2015.

Dr. K. V. Ramana "Make in India Illusion or Possible Reality Project?" International Journal of Academic Research, April-June, 2015.

can "Make in India" make jobs? the challenges of manufacturing growth and high-quality job creation in India by Russell A. Green Will Clayton fellow, International economics james a. baker iii institute for public policy Rice University, (<http://bakerinstitute.org/files/8588/> , 2014)

"Look East, Link West, says PM Modi at Make in India launch". Hindustan Times. 25 September 2014.

www.emergingmarketsforum.org.

<https://economictimes.indiatimes.com/news/economy/policy/make-in-india-2-0-to-focus-on-10-champion-sectors-economic-survey/articleshow/62697756.cms>

http://mofapp.nic.in:8080/economicsurvey/pdf/131144_Chapter_09_ENGLISH_Vol%2001_2017-18.pdf

<https://indianexpress.com/article/business/economy/our-mantra-should-be-produced-by-china-made-in-india-amitabh-kant-niti-aayog-5222993/>

<http://www.makeinindia.com/home>

<http://tradingeconomics.com/india/unemployment-rate>

<https://www.ey.com/in/en/newsroom/news-releases/news-ey-ficci-nasscom-and-ey-future-of-jobs-report>

Sustainability of Heritage Sites

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Abstract

Heritage sites throughout the globe are in critical state and requires immediate rescue. The sustainability practices can be answer. Present paper highlights the need of sustainability and also advocates some applied strategies. It is by nature qualitative and includes detailed analysis of literature. The recommendations to achieve sustainability in heritage sites through effective objective formulation, planning and controlling are discussed at the end of the paper.

Keywords: Sustainability, Heritage Sites, Stakeholders, Problems, Strategy

Introduction

Sustainability has becomes an important topic and concept in relation to monitoring of heritage sites and their planning **and** development (Inskeep 1991). It known as endorsed and a new ideal to remove tourism's adverse effects (Godfrey, 1998). Globalization and industrialization have increased the magnitude of negative impacts of tourism. Now it has become imperative to control and minimize these negative impacts for sustainability of tourism. The long-term operational planning of economic, socio-cultural and environmental benefits of community is important for Sustainability of cultural heritage sites. The management of cultural heritages sites needs periodical monitoring. Tourism destinations and activities should be planned and managed in such a way that there will be a balance of distribution of benefits among all stakeholders (Caribbean Tourism Organization 2010). Sustainability can serve as a tool to achieve heritage conservation and heritage conservation in returns can serve as a tool to achieve sustainability of resources. The socio-cultural sustainability should ensure that the protection of cultural, historical and religious heritage values can be improved (Hassan 2000). Rozemeijer, (2001) defined sustainability in heritage tourism and stated that it must be ecologically and culturally sustainable and the heritage should not decline its value over time. The implementation of sustainable tourism requires exchange of resources in all the stakeholders.

Popular tourist destinations should adopt the greener practices that will imply the sustainability in heritage sites (Mycoo 2006). Rodwell (2008) suggested that stakeholder' needs to conserve and preserves the historical buildings, monuments and sites which are considered to be inherently green and sustainable. Cultural dimension of sustainability focuses not only for preserving cultural identities, but also for promotions of cultural industries (Nurse, 2006). Its focal point is to maintain the value of cultural diversities. Social dimension is required to guarantee the benefits for the local residents, as well as the local heritage assets and culture (Durovic and Loverentjev, 2014). The concept of heritage conservation is defined as the process of understanding, safeguarding historical resources in order to preserve its cultural identity, values and significance. It is considered that sustainable heritage tourism provides quality experience for the tourists while protecting

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the environment and improving the quality of life for local residents (Graham et al. 2000 & Wiles 2007). Sustainability implies conservation of a limited heritage resource. Tourism is assumed to involve change and adaptation in a market environment, whereas heritage tourism is perceived as drawing on the strengths of tradition and socio-cultural resources (Nuryanti 1996). Landorf (2009) noted that the sustainability concept of World Heritage is vague and undefined. Furthermore, the meaning of sustainable landscape is hard to define, because it appears in so many different research areas. Li *et al.* (2008) studied the major issues that challenge the sustainability of World Heritage Sites in China. This study outlined the negative impacts that population pressure places on the authenticity and integrity of WHS. The tourism phenomena affect the local community's life, the way of life and the social structures drastically. Snaith and Haley (1999) state that a community is more likely to support the sustainable tourism development to give the importance of cultural, historical and other types of heritage sites that can be explored and preserved. Ho and McKercher, (2004) suggest that the cultural and heritage significance of a site is more important for the local community than tourists. Therefore, residents' perceptions are important factor to sustain the cultural heritage sites. According to Wall & Mathieson, (2006) & Andriotis (2004) resident's perception should be included in the sustainable tourism developments as it is the growing phenomenon in tourism industries. Sustainable management practices are required to maintain the long term value of heritage sites. Deegan (2012) demonstrated that local community involvement in the management of World Heritage Sites. Several authors recognized a conflict between heritage protection and tourism development and identified the need to develop policies and effective management strategies.

Role of stakeholders in sustainability of heritage sites

The concept of the stakeholders has become increasingly important in the management and sustainability of historic sites (Nuryanti, W. 1996). Their participation must be incorporated in any sustainable management of the historic sites and tourism programmes in order to reduce conflict (Mohammadi, M, Khalifah 2010). A stakeholder is identified as any group or individual who can affect or is affected by tourism development in an area (Freeman 1984). It is well known that government and local residents are major stakeholders in tourism development concerning the sustainability in heritage sites (Fredline and Faulkner, 2000). Community participation and stakeholders involvement in the sustainability of heritage tourism development has emerged rapidly in contemporary times. Community involvement and stakeholders' participation has played an important role for sustainable tourism. Therefore, the need for sustainable tourism development and community participation are necessary in world heritage sites. Stakeholder analysis has gained popularity in the theory, practice and policy of the conservation of cultural built heritage sites (ICOMOS, 2000). In the conservation of cultural heritage sites, stakeholders include the roles and responsibilities of planners, policymakers, architects, archaeologists, historians and others who directly or indirectly deal with built heritage conservation from the public (government), private and community sectors. The decision-making process involves stakeholders who have varied perceptions of the management of cultural heritage. Each of the earlier problems prevailing in the built environment is underlined by stakeholder's perceptions. Their perceptions have an impact on communities, policymakers and practitioners in achieving effective and appropriate heritage conservation Aas et al, (2005). Howard (2003) defined the heritage process as 'a chain that moves through

discovery, inventory, designation, protection, renovation, co modification and sometimes, destruction. As a chain this process makes it evident that multiple stakeholders with different value perceptions are embedded in the decision-making process of built heritage conservation and management. An analysis of stakeholder's perceptions provides an opportunity to identify gaps in the heritage process and its plans. The United Nations World Tourism Organization identified stakeholders as tourism professionals, public authorities, as well as the press and other media in tourism destinations. Swarbrooke (2001) says that different type of stakeholders have played a different type of role to achieve the sustainability in heritage sites and these all type of stakeholders are governments, tourists, host communities, tourism business and other sectors. Sustainability of heritage resources cannot be achieved without the direct involvement of the local community. The physical state of resources is directly connected to the local community participation if heritage is respected, used and managed by locals, it has better chances to be restored and protected. Managing visitor impacts, adequate spending on maintenance of heritage sites, involvement of stakeholders, appropriate interpretation and education is necessary in sustainable heritage management strategy (UNESCO, 2004). At globally, the sustainable heritage management has the reality of cultural heritage sites from visitor management, stakeholder involvement and protection perspectives which is a major challenge for present and future generations. It is an important part of human culture which is unforeseen throughout the globe (European Association for Heritage Interpretation, 2011). The involvement and co-operation of local community is necessary to achieve a sustainable tourism development and the protection of heritage resources for future generations. Sustainability of heritage tourism is also highly influenced by the role of local communities' interpretation, safety, visual effects of the local environment, and overall attitudes of residents towards tourists have a great impact on visitor experiences. If the development of tourism is increasing, sustainability aspects concerning resident community cannot be ignore and they have a great chance to achieve the sustainability in heritage sites to protect them for future.

The sustainability aspects concerning local community includes: numbers of heritage places operated by the locals to protect them, training of locals peoples to acquire ability and skills for participation in heritage conservation, respect for local intellectual property, locals accessibility of heritage as tourism resource and use of tourism facilities, local community participation in decision making relating to tourism development of heritage resource (Xiang and Wall, 2005). Mann, (2000) stated that community involvement refers to the development of a system that affords all relevant community stakeholder groups full participation in collaborative decision making, and co ownership of responsibility and benefits about sustainability of heritage sites. Tri Anggraini Prajnawrdht, Alpana Sivamb, Sadasivam Karuppananc (2012), in his article expanded the role of government and governance to sustain heritage sites. The government played an important role to reduce the negative impacts of population growth on sustainability of heritage sites. The effectiveness of heritage policies in safeguarding the heritage sites is necessary by comparing a few heritage sites. The government seeks to initiate private investments in built heritage or sustainability and financial incentives for future generations (Sigmund, 2014).

Applied strategy of sustainability in heritage sites

To achieve the sustainability in heritage sites the importance strategy, objectives, projects and actions should be implemented for monitoring of all the heritage sites. Val d'Orcia has developed an integrated system of monitoring and identified objects, plans and programs for achieving sustainability in heritage sites. Jansen-Verbeke and McKercher, (2013) says that the essential methodologies should be planned and managed for achieving the sustainability in heritage landscapes and supports to the conservation, development and dissemination of the values of rural World Heritage Sites for future generations. The Operational Guidelines should be given for the Implementation of the sustainability in World Heritage sites and important steps should be taken by the States Parties to fulfil the protection of heritage sites. These guidelines will give the information on the requirements for monitoring use of the world heritage sites can provide information on the assistance available to managers through the World Heritage network. Cultural Heritage management involves those actions that have been taken to identify, assess and decisions regarding Cultural Heritage Sites. It is undertaken to actively protect the heritage places, objects and practices in relation to the sustainability of these heritage sites. Different countries have different approaches for the improvements of their Cultural Heritage management. The Management Plan should be used for achieving the sustainability in World Heritage Sites. The most common components of a Management Plan include the following: Site description: location, boundaries, components and users. Historical development and cultural significance of the site; existing management system; management vision and objectives; conservation and management issues and needs assessment; expertise needed to manage the heritage site; funding; training; action plan and maintenance schedules.

References

- Aas, C., Ladkin, A. and Fletcher, J. (2005). Stakeholder collaboration and heritage management. *Annals of Tourism Research*, 32(1), 28-48.
- Caribbean Tourism Organization 2010. Environmental, Economic and Human Resource Sustainability for Community Tourism: Community Tourism Workshop, Dominica. Available:
<http://www.onecaribbean.org/content/files/Dominica%20CBT%20Presentation1.pdf>.
Accessed: 19 October 2014.
- Deegan, N. The local-global nexus in the politics of World Heritage: Space for community development? In *Community Development through World Heritage*, 1st ed.; Albert, M.-T., Richon, M., Viñals, M.J., Witcomb, A., Eds.; United Nations Educational, Scientific and Cultural Organization: Paris, France, 2012; pp. 77–83.
- European Association for Heritage Interpretation. (2011). *Interpret Europe*. Freiburg.
- Freeman, R.E. (1984). *Strategic management: A stakeholder approach*. Boston: Pitman.
- Graham, B. 2002. Heritage as Knowledge: Capital or Culture? In *Urban Studies*
- Godfrey, K.B. (1998). Attitudes towards 'sustainable tourism' in the UK: a view from local government. *Tourism Management*, 19 (3), 213-224.
- Hietala-Koivu, R. Agricultural landscape change: A case study in Yläne, southwest Finland. *Landsc. Urban Plan.* 1999, 46, 103–108.
- Hassan, S.S. 2000. Determinants of Market Competitiveness in an Environmental Sustainable Tourism Industry. In *Journal of Travel Research*.
- Ho, P. & McKercher, B. (2004). Managing heritage resources as tourism products. *Asia Pacific Journal of Tourism Research*, 9(3), 255-266.

- Inskip, E. (1991). *Tourism Planning: An Integrated and Sustainable Development Approach*, New York: Van Nostrand Reinhold.
- Jansen-Verbeke, M.; McKercher, B. Reflections on the Myth of Tourism Preserving "Traditional" Agricultural Landscapes. *J. Resour. Ecol.* 2013, 4, 242–249.
- Li, M.; Wu, B.; Cai, L. Tourism development of World Heritage Sites in China: A geographic perspective. *Tour. Manag.* 2008, 29, 308–319.
- Landorf, C. A Framework for Sustainable Heritage Management: A Study of UK Industrial Heritage Sites. *Int. J. Herit. Stud.* 2009, 15, 494–510.
- Mycoo, M. 2006. Sustainable Tourism Using Regulations, Market Mechanisms and Green Certification: A Case Study of Barbados. In *Journal of Sustainable Tourism*.
- Mohammadi, M., Khalifah 2010. Local People Perceptions toward Social, Economic and Environmental Impacts of Tourism in Kermanshah (Iran). *Asian Social Science.* 6(11): 220-225.
- Mann, M. (2000), *The Community Tourism Guide: Exciting Holiday for Responsible Travelers*, Earthscan, London
- Nuryanti, W. 1996. Heritage and Postmodern Tourism. In *Annals of Tourism Research*. Pp. 249-260. Elsevier Science Ltd.
- Nurse, K. (2006). Culture as the fourth pillar of sustainable development. *Small states: economic review and basic statistics*, 11, pp. 28-40.
- Rozemeijer, N. (2001), *Community-Based Tourism in Botswana: The SNV Experience in Three Community-Based Tourism Projects*, SNV Botswana, Gaborone, available at: www.snvworld.org/sites/www.snvworld.org/files/publications/botswana-tourism-community_based_tourism2001.pdf (accessed August 7, 2014).
- Rodwell, D. (2008). *Conservation and sustainability in historic cities*. Oxford: John Wiley and Sons
- Sigmund, Z. (2014). *Public buildings seismic vulnerability risk mitigation management model*. Ph.D. Doctoral Thesis, University of Zagreb
- Swarbrooke, J. (2001). *Sustainable tourism management* (2nd ed.). London: CAB International.
- Tri Anggraini Prajnawrdht, Alpana Sivamb, Sadasivam Karuppananc, 2012 *The Role of government and governance to sustain heritage sites in Denpasar*
- UNESCO. (2004). *The Effects of Tourism on Culture and the Environment in Asia and the Pacific: Tourism and Heritage Site Management in Luang Prabang, Lao PDR*. UNESCO Bangkok. Bangkok
- Wall, G. & Mathieson, A. (2006). *Tourism: Change, Impacts and Opportunities*. Sydney: Pearson Education.
- Xiang, Y. and Wall, G., 'Heritage Conservation and Local Communities: Pressing Issues in the Developing Countries', *Proceedings of the 3rd Sino-Korea International Tourism Conference*, August 2005, Weihai, China.

Influence Of Problem-solving Skills in SHG Associate's Enactment

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Abstract

To study the perception of SHG members towards problem-solving skills in study area. The sample size of 146 was enough for the present research. The researcher has applied the proportionate stratified sampling technique from probability sampling method to collect the primary data from SHG members in Thoothukudi. This is the need of the hour to empower the women so that they can face the difficulties in their life. There are many ways through which the government is trying to empower the women of the country, but activities of the government remain unsatisfactory and yet to reach the majority of the population.

Keywords: Self-Help Group, Problem-solving skills, Women empowerment.

1. Introduction

The SHG is the brainchild of Grameen Bank of Bangladesh, which was founded by Prof. Mohammed Yunus of Chittagong University in 1975. The concept of SHG serves to underline the principle "for the people, by the people and of the people". Mohammed Yunus, popularly known as the father of micro credit system, started a research project in Bangladesh in 1979 and came out with ideas of micro credit that resulted in the establishment of Grameen Bank in 1983. In 1984, the participants of the Third International Symposium on Mobilization of Personal Savings in Developing Countries organized by the United Nations, agreed in the final resolution that internal savings must provide the basis of credit programmes, the control of state government over interest rate must be relaxed and there should be more decentralized financial services and strong linkage between the formal and informal credit institutions for development. In India, soon after the independence, there has been an aggressive effort on the part of the Government to improve the access of the rural poor to formal credit system. Some of these measures have been institutional, while some others were through implementation of focused programmes for removal of rural poverty. Reaching out of the far-flung rural areas to provide credit and other banking services to the hitherto neglected sections of the society is an unparalleled achievement of the Indian Banking System. The main emphasis is the spread of the banking network and introduction of new instruments and credit packages and programmes were to make the financial system responsive to the needs of the weaker sections in the society comprising small and marginal farmers, rural artisans, landless agricultural and non-agricultural laborers and other small borrowers falling below the poverty line.

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2. Review of Literature

Rohit Sharma (2017) in his article titled "Role of Self-Help Groups in Women Skill Development" in this article displayed to the socio-economic development of a country depends upon women empowerment to a large extent. In developing economies like India skill development especially in case of female population is of paramount importance. Since the inception of micro-financing Self Help Groups are playing crucial role in skill development. Higher is the level of skill development higher would be the employment opportunities available to the female members resulting in elevation of their socio-economic conditions. This paper throws light on skill development of women power looking for self-dependency and self-sustain development to help their family in improvement in their living standard to a great extent. Pal Subhadip (2016) in his journal titled "Social and Economic Empowerment of Rural Women Through Self Help Groups (SHGs): A Case Study In West Bengal, India" The investigation was conducted in ten selected villages of Katwa Block- I under Burdwan district to know the role of rural SHGs and non-SHGs on the empowerment of rural farm women in ten selected villages of Katwa Block- I under Burdwan district. Data were collected through interviews scheduled for 200 rural women (100 SHGs and 100 non-SHG members) during 2014. Analysis was conducted on the extent of various levels of empowerment achieved by the members through their participation in SHGs. Findings revealed that majority of respondents (59%) were young women in the age group between 20 to 35 years. The samples were collected predominantly on nuclear family type. Most women respondents (98.5%) were from Hindu Scheduled caste and tribe. Mostly literate women sampled in this study engaged in various activities such as agriculture farming and farm labour. Among the sampled women, levels of empowerment such as social status, greater participation in democratic institution, greater participation and power of decision making in community and village, monthly savings, performing bank transaction, speaking during public meetings etc. increased after joining the SHGs. The significant differences between the SHG and Non-SHG women in relation to empowerment in social and economic aspects suggest that SHGs have great impact on rural farm women's empowerment.

3. Objectives of the study

To study the perception of SHG members towards problem-solving skills in study area.

4. Hypothesis

H1 - "All the Age group of SHG members have the same level of problem-solving skills".

H2 - "Different educational status of the SHG members have the same level of problem-solving skills".

5. Research Methodology

The methods used for the collection and analysis of data are provided in this section. Specific tools of analysis and empirical models are also presented. The study is based on both primary and secondary data. The secondary data are made available from the various journals, books and websites. The required primary data are collected from the selected respondents with the help of a comprehensive, pre-tested enquiry schedule, through personal interview method. The sample size of 146 was enough for the present research. The researcher has applied the proportionate stratified sampling technique from probability sampling method to collect the primary data from SHG members in Thoothukudi.

6. Analysis & Discussions

6.1 Differences among the Age of the SHG members and their problem-solving skills

The ANOVA is used to assess the presence of mean variations among different Age groups. Normally, this test is applied to know the existence of the differences among various groups' mean variation (more than two groups).

Table No: 1: Differences among the Age of the SHG members and their problem-solving skills

Problem solving Entrepreneurial Skills	Up to 25 years	26 – 35 Years	36 – 45 Years	Above 45 Years	F- Value
Administrative skill	3.31 ^a	3.50 ^a	4.17 ^b	3.92 ^b	27.029*
Financial skill	3.16 ^a	3.47 ^a	3.71 ^b	4.23 ^b	24.523*
Marketing skill	4.20 ^a	3.62 ^a	3.37 ^b	3.01 ^b	15.599*
Production Skill	3.35	3.41	3.66	3.49	1.875 ^{Ns}

Source: Computed Primary Data

Note: * denotes significant level at 5% ($T.V = 2.63$)

^{Ns} denotes Not significant 'a' denotes subset 1 and 'b' denotes subset 2

The table 4.42 depicts the result of ANOVA test conducted to scrutinize the level of problem-solving entrepreneurial skills existing in the members of self-help groups and the relationship betwixt their age on their performance level. Here the respondents are divided into four main divisions under their age group as, up to 25 years, 26-35 years, 36-45 years and 45 years and above. For Administrative skill: in case of administrative skills, members of self-help groups under the age of 36-45 years shines in administrative skills with the highest mean score of 4.17. Next to them come the members with the above 45 ages. These respondents with the age of above 45 excel in administrative skills with the enormous mean score of 3.92. There is no remarkable difference between the level of administrative skills of members with 25-36 ages and up to 25 age. Members of 25-36 age group stands ahead from the members of up to 25 age group (mean score= 3.31) by their mean score of 3.50. For financial skill: The members of self-help groups falling under the age group of above 45 are unrivalled in financial skill. They obtained the massive mean score of 4.23. Next comes the members coming under the age group of 36-45. They excel in financial skill in a fabulous way hence they achieved the second highest mean score of 3.71 There is no much difference between the financial skill level of self-help group members lying under the age category of 26-35 and up to 25 years. They attained the mean score of 3.47 and 3.16 respectively. For marketing skills: Young members of self-help groups lying under the age category of up to 25 years are unrivalled in the marketing skills. They received the huge mean score of 4.20. Next comes the members under the age category of 25-36, they attained the second highest mean score of 3.62. Their highest mean score depicts their remarkable performance in the field of marketing with their marketing skill. The aged members falling under the age group of 36-45 and 45 above shows meagre amount of marketing skill. They secured the meagre mean score of 3.37 and 3.01 respectively. It can be witnessed through the table that, enthusiasm the key of marketing lies heavily on the younger members. For production skill: in case of production skills, members of self-help groups under the age of 36-45 years shines in production skill with the highest mean score of 3.66. Next to them come the members with the above 45 ages. These respondents with the age of above 45 excel in production skills with the enormous

mean score of 3.45. There is no remarkable difference between the level of production skills of members with 25-36 age and up to 25 age. Members of 25-36 age group stands ahead from the members of up to 25 age group (mean score= 3.35) by their mean score of 3.41

6.2 Differences among the Educational status of the SHG members and their problem-solving skills

The ANOVA is used to assess the presence of mean variations among different Age groups. Normally, this test is applied to know the existence of the differences among various groups' mean variation (more than two groups).

To test the null hypothesis, the ANOVA test is applied and the results are shown in the following table:

Table No: 2: Differences among the Educational Status of the SHG members and their Problem Solving Skills

Problem solving Entrepreneurial Skills	Illiterate	Up to HSC	UG	PG	F-Value
Administrative skill	2.58 ^a	3.65 ^a	4.16 ^b	4.53 ^b	37.233*
Financial skill	2.11 ^a	3.32 ^a	4.33 ^b	4.57 ^b	42.076*
Marketing skill	3.45	3.51	3.65	3.49	1.404 ^{Ns}
Production Skill	3.56 ^a	3.72 ^a	3.28	3.16	4.781*

Source: Computed Primary Data

Note: * denotes significant level at 5% (T.V = 2.63)

^{Ns} denotes Not significant 'a' denotes subset 1 and 'b' denotes subset 2

Differences among the Main occupation of the SHG members and their problem solving the table 4.43 reveals the result of ANOVA test organized in order to find out the level of Problem-solving entrepreneurial skills as per the literacy level of the self-help group members. Here the respondents are segregated into four main divisions according to their literacy level in the array of illiterates, up to HSC, UG and PG. For Administrative skill: Members of self-help groups who have secured their post graduate degree shines in administrative skill. They obtained the massive mean score of 4.53. Next to these members comes the member with their undergraduate degree. These UG degree holders attained the second highest mean score of 4.16 which brings out their fantastic administrative skill. Members of self-help groups with the educational qualification of HSC have achieved the mean value of 3.65. They stand just ahead the illiterate members in administrative skill (mean score= 2.58). For financial skill: Self-help group members who are the PG degree holders are unrivalled in financial skill. They got the huge mean score of 4.57 Next to them comes the UG degree holding members. They excel in financial skill next to the Post graduate members. They achieved the second highest mean score of 4.33. There is no significant difference between the financial skill level of members with the HSC qualification and illiterates. They got the mean score of 3.32 and 2.11 respectively. For marketing skill: Members of self-help groups who have completed under graduate degree shines in marketing skill. They obtained the massive mean score of 3.65. Next to these members comes the member with their HSC qualification. These members with HSC qualification attained the second highest mean score of 3.51 which brings out their fantastic marketing skill. Members of self-help groups with the educational qualification of PG degree has achieved the mean value of 3.49 They stands just ahead the illiterate members in marketing skill (mean score= 3.45). For production skill: Members of self-help

groups who have secured their HSC education shines in production skill. They obtained the massive mean score of 3.72. Next to these members come the illiterate members. These illiterate members without any proper education attained the second highest mean score of 3.56 which brings out their fantastic production skill. Members of self-help groups with the educational qualification of UG degree have achieved the mean value of 3.28. They stand just ahead the PG degree holders in production skill (mean score= 3.16).

8. Conclusion

This is the need of the hour to empower the women so that they can face the difficulties in their life. There are many ways through which the government is trying to empower the women of the country, but activities of the government remain unsatisfactory and yet to reach the majority of the population. Therefore, the self-help groups that were started by the women themselves become very significant in this context where they themselves come together and share their problems and find solutions to their problems collectively.

Reference

- Anjali Vyas (2016) "The Impact of Skill Development on Women Empowerment" Anjali Vyas in her research titled (2016) "The Impact of Skill Development on Women Empowerment"
- Hemalatha A. V. (2016) "Skill Development of Women Micro Entrepreneurs - A Study Among Self Help Group Members in Kerala" IRJC Asia Pacific Journal of Marketing & Management Review Vol.1 No. 3, November 2012, ISSN 2319-2836
- Jun Goto (2014) "The Impacts of Self-Help Group Programs: Experimental and Survey Evidence from South India": Geographical Research September 200644(3):285–295 doi: 10.1111/j.1745-5871.2006.00390.x
- Kumar K.P. (1997), "Self – help Groups: An alternative to institutional credit to the poor – A Case Study in A.P.", Journal of Rural Development, Vol.16, No.3, pp.515-530.
- Laldinglana and Bhartendu Singh (2016) "The Promotion of Self-Help Groups (SHGs) In Mizoram: An Analysis of Self-Help Promoting Institutions (SHPIs)" International Journal of Multidisciplinary Approach and Studies ISSN NO:: 2348 – 537X
- Pal Subhadip (2016) "Social And Economic Empowerment of Rural Women Through Self Help Groups (SHGs): A Case Study In West Bengal, India": International Journal of Agriculture Sciences ISSN: 0975-3710&E-ISSN: 0975-9107, Volume 8, Issue 32, 2016, pp.-1673-1676.
- Rohit Sharma (2017) "Role of Self Help Groups in Women Skill Development": Recent Researches in Social Sciences & Humanities Vol.: 4, Issue: 3 Oct.-Nov.-Dec. (2017), Pages: 45 – 50 ISSN 2348 – 3318

Study on Optimization of Machining Economic Problems

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Abstract

The present study proposes analytical models & numerical procedures for determination of optimal cutting speed & tool life in machining economic problems with minimization of machining cost per piece & maximization of productivity. In this study, mild steel rod is considered as work piece & High Speed Steel (HSS) as well as carbide as cutting tool. Economics of machining could be achieved by studying the cost & productivity of the operation related to tool life & cutting speed. Using Gilbert's (Father of time study) concepts & Taylor's tool life equation, the optimum velocity & tool life are determined.

Keywords: Optimization, Gilbert's concept, Machining parameters, Materials, Tool life.

1. Introduction

An increase in productivity requires involvement of all production operations, technical possibility for all use or activation of all the available manufacturing facilities. In order to involve all the technological operations, optimum technological processes, optimum tool selection, suitable combination of tool-work piece material & determination of optimum cutting variables, tool geometry must be considered. The tool geometry has an important factor on cutting forces & cutting forces are essential sources of information about productive machining. Due to more demanding manufacturing systems, the requirements for reliable technological information have increased. As the mechanics of cutting in this area are very complicated, it is not possible to make any precise statements about their mutual influences. Therefore, it is important for the researchers to model & quantify the machining parameters affecting its value. The determination of its value remains an open field of research mainly because of the advances in machining & materials technology & the available modelling technique Abdulkaremet. al. [1] have investigated the influence of the three most important machining parameters of depth of cut, feed rate and spindle speed on surface roughness during turning of AISI 1045. Box Behnken experimental design method as well as analysis of variance (ANOVA) is used to analyse the influence of machining parameters on surface roughness height Ra. From the experiments they concluded that the feed rate is found to be the most important parameter effecting Ra, followed by cutting speed while spindle speed has the least effect. They also found that machining with high cutting speed and spindle speed has positive effect on Ra as against feed rate. Naga et al. [2] explained an optimal setting of turning parameters which results an optimal value of surface roughness & maximum metal removal rate while machining aluminium bar with HSS tool. Warhade et al[3] investigated the effect of cutting parameters namely cutting speed, depth of cut & feed rate on minimizing required machining rate & maximize metal removal rate during machining of aluminium, alloy 6063 using VBM 0.2 tool. Makadia et al. [4] investigated the main turning parameters such as feed rate, tool nose radius, cutting speed & depyh of cut on the surface roughness by using Response Surface Method (RSM). The surface roughness was found to increase with

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the increase in the feed & it decreased with increase in the tool nose radius. Singh et al. [5] showed that Optimization of Machining Parameters to Minimize Surface Roughness using Integrated ANN-GA approach that provides the ANN-GA method for determining the optimum machining parameters leading to minimum surface roughness. Alagarsamy et al. [6] applied Taguchi experimental method for optimization of process parameters in turning of Aluminium alloy 7075 using tungsten coated carbide tool. From experiment it was found that the most significant factor influencing metal removal rate (MRR) followed by feed rate & depth of cut was the least significant factor. Ghan et al [7] Provided literature review on machining parameters such as cutting speed, feed & depth of cut of different materials. Ay [8] presented an experimental optimization of cutting forces & surface roughness in turning of AISI 304L stainless steel using wiper & conventional insert cutting tools with dry cutting conditions.

2. Problem Statement

Economics of machining could be achieved by studying the cost & productivity of the operation related to tool life & cutting speed. According to Gilbert, there are two concepts (maximum production rate or minimum production time & minimum production cost) to determine the optimum cutting velocity & tool life. Maximum production rate or minimum production time aims to maximize number of parts produced in a unit time interval or minimizes the time per unit part. Minimum production cost aims to determine the least production cost. The optimum velocity & tool life can also be obtained by applying Taylor's tool life equation.

3. Tool life, Work piece, Tool materials & process parameters

3.1 Tool life

The total life accumulated before tool failure occurs is termed as tool life. There is no exact or simple definition of tool life. However, in general, the tool life can be defined as tool's useful life which has been expended when it can no longer produce satisfactory parts. The most commonly used criteria for measuring the tool life are (i) total destruction of tool when it ceases to cut. (ii) a fixed size of wear land on tool flank. The greatest variation of tool life is with the cutting speed & tool temperature which is closely related to cutting speed. Tool temperature is seldom measured & much study has been done on the effect of cutting speed on tool life. In 1907, Taylor gave the following relationship between cutting speed & tool life,

$$VT^n = C \dots \dots \dots [1]$$

Where V is the cutting speed (m/min), T is the time in minutes for the flank wear to reach a certain dimension i.e. tool life. C is the constant & n is an exponent which depends upon cutting conditions.

3.2. Work piece

In this present experiment, Mild steel rod is taken as work piece. It can be machined & shaped easily due to its inherent flexibility. It can be hardened with carburizing, making it the ideal material for producing a range of consumer products. The high amount of carbon also makes it vulnerable to rust. Compared to other types of steel, this type is ideal for welding purposes as it conducts electric current effectively without tarnishing the metal surface in any way. Unlike other grades of carbon steel which tend to be brittle, mild steel is hard, yet malleable, making it ideal choice for the construction of pipelines

3.3. Tool materials

In this experiment, HSS tool & carbide tool are used as tool materials. During machining, carbide tools ensure higher wear resistance, lower heat generation & lower cutting forces, thus enabling them to perform better at higher cutting conditions. HSS tool can withstand higher temperatures without losing its temper (hardness). This property allows HSS tool to cut faster than high carbon steel, hence the name high speed steel. Carbides are most important because of their high hardness over a wide range of temperature, high elastic modulus, high thermal conductivity & low thermal expansion.

3.4. Process parameters

The process parameters like cutting speed, depth of cut & feed rate play an important role in determination of tool life of a tool, since they control the rate of metal removal & the production rate. The cutting speed has the greatest on the tool life followed by feed rate & depth of cut respectively. Effect of these parameters on tool life can be explained in terms of tool work piece interface temperature. It has been seen that the tool life is a direct function of cutting temperature irrespective of the cutting conditions. These process parameters monitor the temperature of cutting zone which regulates the wear of the tool. This causes the changes in the tool life of the tool.

4. Results & discussions

4.1. Experimental

4.1.1. Combination of HSS & mild steel

In the present experiment HSS is taken as cutting tool while mild steel as work piece to determine the values of n & C considering Taylor's equation $VT^n = C$

At beginning, turning operation was performed using mild steel as work piece & HSS as cutting tool. The experiment was carried out for single point cutting tool & no cutting fluid/lubricant was used throughout the turning operation. The turning operation was carried out at a speed of 20 m/min. Failure of the tool was determined by roughness of the work piece as well as blunt surface of the tool tip. A number of tool failure time was noted & the average failure time was calculated shown in table 1 & 2 respectively. The same process was repeated with cutting speed of 25m/min finally the values of n & C was determined using equation

$VT^n = C$

Table 1 Combination of HSS & mild steel for cutting velocity 20 m/min

Serial No.	Failure time T ₁ (min)
1	41.06
2	43.34
3	92.40
4	81.42
5	76.42
6	70.39

Feed (f) = 0.12mm, Depth of cut (d) = 2mm, Cutting speed (V₁) = 20 m/min.

T_{1avg} = 67.5 min

From Taylor's equation $V_1T_1^n = C$

$20 \times 67.5^n = C$ [2]

Table 2 Combination of HSS & mild steel for cutting velocity 25 m/min

Serial No.	Failure time T ₁ (min)
1	19.28
2	36.11
3	25.12
4	20.32

$T_{2\text{ avg}} = 25.22\text{min}$

From Taylor's equation $V_2 T_2^n = C$

$25 \times 25.22^n = C \dots\dots\dots [2]$

From equation [1] & [2]

We get, **n = 0.226, C = 51.8**

4.1.2 Combination of Carbide & mild steel

In this case, mild steel rod & carbide are considered as workpiece & cutting tool respectively for turning operation. The experiment was carried out with no cutting fluid or lubricants & cutting tool should be single point. The turning operation was carried out at a speed of 40 m/min & 60 m/min respectively. Roughness of the workpiece & blunt surface of the tool tip determined the failure of the tool. A number of tool failure times were noted & average failure time was calculated shown in table-3 & 4 respectively. Finally, the values of n & C was determined using Taylor's equation $VT^n = C$.

Table 3 Combination of Carbide & mild steel for cutting velocity 40 m/min

Serial No.	Failure time T ₁ (min)
1	110.20
2	130.30
3	119.43

Feed (f) = 0.12mm, Depth of cut (d) = 2mm, Cutting speed (V₁) = 20 m/min.

$T_{1\text{ avg}} = 120.11 \text{ min}$

From Taylor's equation $V_1 T_1^n = C$

$40 \times 120.11^n = C \dots\dots\dots [3]$

Table 4 Combination of Carbide & mild steel for cutting velocity 40 m/min

Serial No.	Failure time T ₁ (min)
1	46.12
2	42.27

Feed (f) = 0.12mm, Depth of cut (d) = 2mm, Cutting speed (V₂) = 60 m/min.

$T_{2\text{ avg}} = 44.2 \text{ min}$

$60 \times 44.2^n = C \dots\dots\dots [4]$

From equation [3] & [4]

We get, **n = 0.486, C = 409.95**

4.2. Optimization

Optimization based is based on time, cost or profit rate criteria. According to Gilbert (Father of time study), optimization criteria are Maximum production rate or minimum production time & minimum production cost.

4.2.1. Combination of HSS & mild steel

Concept of maximum productivity

For maximum production, total production time/piece should be minimum

$$V_{opt} = \frac{C}{\left[\left(\frac{1}{n} - 1\right)t_d\right]^n} = 27.26 \text{ m/min}$$

Where

t_d = Tool changing time for one change = 5 min, $n = 0.226$ & $C = 51.8$.

$$T_{opt} = \left[\frac{1}{n} - 1\right]t_d = 17.12 \text{ min}$$

Concept of minimum cost

$$V_{opt} = C \left[\left(\frac{n}{1-n}\right)^n \left(\frac{k_1}{k_1 t_d + k_2}\right)^n \right] = 18.95 \text{ m/min}$$

Where

$n = 0.226$, $C = 51.8$, $t_d = 5$ min, K_1 = Labour cost/min = Rs 0.5/-per min,

Grinding cost = Rs 10/- per grinding

$$T_{opt} = \left[\frac{1}{n} - 1\right] \left[\frac{k_1 t_d + k_2}{k_1} \right] = 85.62 \text{ min}$$

4.2.2. Combination of Carbide & mild steel

Concept of maximum productivity

For maximum production, total production time/piece should be minimum

$$V_{opt} = \frac{C}{\left[\left(\frac{1}{n} - 1\right)t_d\right]^n} = 149.84 \text{ m/min}$$

Where

t_d = Tool changing time for one change = 7.5min, $n = 0.486$ & $C = 409.95$.

$$T_{opt} = \left[\frac{1}{n} - 1\right]t_d = 7.93 \text{ min}$$

Concept of minimum cost

$$V_{opt} = C \left[\left(\frac{n}{1-n}\right)^n \left(\frac{k_1}{k_1 t_d + k_2}\right)^n \right] = 79.68 \text{ m/min}$$

Where, $n = 0.226$, $C = 51.8$, $t_d = 5$ min, K_1 = Labour cost/min = Rs 0.5/-per min,

Grinding cost = Rs 10/- per grinding

$$T_{opt} = \left[\frac{1}{n} - 1\right] \left[\frac{k_1 t_d + k_2}{k_1} \right] = 29.08 \text{ min}$$

5. Conclusion

For combination of HSS & mild steel, considering the concept of maximum productivity, the optimum velocity & optimum tool life are 27.26 m/min & 17.12 min respectively. Considering the concept of minimum cost, the optimum velocity & the optimum tool life are 18.95 & 85.62 min. For combination of Carbide & mild steel, considering the concept of maximum productivity, optimum velocity is 149.84 m/min & optimum tool life is 7.93 min.. Considering the concept of minimum cost, the optimum velocity is 79.68 m/min &

the optimum tool life is 29.08 min. For example, if surface finish is taken as. Primary consideration in present work & keep concept of minimum cost, then HSS tool is preferred over Carbide tool.

Acknowledgements

Dr. Ramesh Chandra Mohapatra was born in Orissa, India in 1969. He graduated from Department of Mechanical Engineering of UCE, Burla, now VSSUT, Burla, and Orissa, India. He received the degree of M.Tech in Thermal Engineering from Department of Mechanical Engineering of Indian Institute of Technology (IIT), Kharagpur, West Bengal, India and PhD in Mechanical Engineering from Utkal University, Vanivihar, Bhubaneswar, and Orissa, India. He is presently working as Associate Professor & HOD of Mechanical Engineering Department in Government College of Engineering, Keonjhar, Orissa, India.

References

- [1] Suleiman Abdulkareem, Usman Jibrin Rumah & Apasi Adaokoma, "Optimizing Machining Parameters during Turning Process", International Journal of Integrated Engineering, Vol. 39(1), (2011), pp. 23-27,
- [2] M.Naga Phani Sastry, K.Devaki Devi. "Optimizing of Performance Measures in CNC Turning using Design of Experiments (RSM)." Science Insights: An International journal, 2011; 1(1):1-5.
- [3] P.Warhade, Sonam K.Bhilare, Shirley R.Gaikwad. "Modeling and Analysis of Machining Process using Response surface methodology". International Journal of Engineering and Development Volume 2, December- 2013 .ISSN 2249-6149.
- [4] Makadia Ashvin J. & Nanavati J.I., "Optimisation of machining parameters for turning operations based on response surface methodology" Measurement, Vol.46, (2013), pp. 1521-1529.
- [5] Kuldip Singh Sangwan, Sachin Saxena, Girish Kant, "Optimization of Machining Parameters to Minimize Surface Roughness using Integrated ANN-GA Approach", The 22nd CIRP conference on Life Cycle Engineering, Elsevier, 2015, pp. 305-310.
- [6] S.V. Alagarsamy, P. Raveendra, S. Arockia Vincent Sagayaraj, S. Tamil Vendan, "Optimization of machining parameters for turning Aluminium alloy 7075 using Taguchi method", International Research Journal of Engineering & Technology, Vol.3(1), (2016), pp.316-322.
- [7] H.R. Ghan, A.A. Hashmi, M.M. Dhobe, "A review on optimization of machining parameters for different materials", International Journal of Advance Research, Ideas & Innovations in Technology, Vol.3 (2),(2017),pp.25-27.
- [8] M. Ay, "Optimization of machining parameters in turning AISI 304L stainless steel by the grey-based Taguchi method," Acta Physica Polonica A, Vol.131 (3),(2017), pp. 349-353.

Customer Perceptions on Virtual Banking - Literature Review

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Abstract

Technology is influencing banking sector significantly in recent years. The virtual banking has influenced all banking services significantly, several studies were undertaken to access the quality of service with respect to virtual banking. Most of these studies have identified the satisfaction of the customers with respect to services of virtual banking. In this paper an attempt has been made to narrate a few empirical studies discussing the effectiveness of virtual banking from the point of view of customers.

Traditional branch banking is being replaced with virtual banking in recent years. Commercial banks in India are now becoming more market oriented and customer friendly. Efforts are being taken to improve their competitiveness through enhanced service quality. Satisfied customers are central to optimal performance and financial returns. Virtual is an interconnection of computer communication networks spanning the entire globe, crossing all geographical boundaries.

In India, ICICI bank was the first bank which offered this delivery channel, by kicking off its online services in 1996. Other private sector banks like Citibank, Indus land Bank and HDFC and Times Bank (now part of HDFC bank) started offering internet services in 1999. State Bank of India launched its services in July 2001. Other public sector banks like Bank of Baroda, Allahabad Bank, Syndicate Bank and Bank of India, also rolled its services during the same time. Banks in India currently offers "Fully Transactional Websites" to their customers. The customers are getting a variety of facilities through internet banking facility which includes: account summary, details of historical banking transactions, funds transfer, loan applications, bill payments, cheque book request, cheque status enquiry, stop cheque request, credit card payments/ statements, facilities to contact account managers, etc. Against this backdrop, an attempt has been made to narrate a few important studies along with their brief review on this theme.

Uday S Rajput¹ in his paper on "*Customer Perception on E-Banking Service*" which examines, that customers' choice of banks is influenced by the quality of e-banking services provided. The ANOVA analysis revealed that the relationship with different income group of respondents that the perception about the e-banking services offered by banks. The study revealed that education, gender and income play an important role in usage of online banking. The research supported the conceptual framework stating that if skills can be upgraded there will be greater will to use online banking by consumers.

D.N.V.Krishna Reddy, Dr.M.Sudhir Reddy² in 2015 published, "*A Study On Customer's Perception and Satisfaction towards Electronic Banking in Khammam District*" which concluded that around 70 % of people have positive perceptions & are satisfied with E-Banking Services. Still people of these areas are not using all the E-banking services frequently because they have less knowledge about computer and internet; so they feel hesitation in using E-banking services. So banks should improve their

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promotional and communication strategies to make aware the customers regarding IT services and build up positive perception to improve the level of usage of E-Banking with high level of satisfaction.

M.E.Dodda Raju, Dr.T.Narayana Reddy³ in 2014 published research paper titled, ***“Customer Perception Study-Towards E-Banking Services of Public and Private Sector Banks - With Special Reference to Chittoor District of Andhra Pradesh”*** which clearly shows that different age group of customer and different occupation group of customers have different perception toward the e-banking services. The results also propose that demographic factors impact significantly internet banking behavior, specifically, occupation and age. Finally, this paper suggests that an understanding about the customer's perception regarding the e-banking services of public and private sector banks in Chittoor dist. of Andhra Pradesh it will help to the bankers to understand the customers need in better way.

Malika Rani⁴ in 2014 published ***“A study on customer perception towards E Banking in Ferozepur District”*** which brings out the measurement of customer perception towards E-Banking which is becoming very popular and convenient method of dealing with banks now-a-days. E-Banking denotes the provision of banking and related service through Extensive use of information technology without direct recourse to the bank by the customer. In this paper consumer perception toward the usefulness and willingness to use e- banking are identified and measured. Customer satisfaction level towards the E-Banking has been identified.

Mr. Lakshmi Narayana.K etc, in 2014 in their research paper ***“A Study on Customer Satisfaction towards Online Banking services with reference to Bangalore city.”***, revealed that Banking Needs, followed by Core Services, Problem Resolution, Cost Saved, Convenience and Risk and Privacy Concerns were the major factors that strongly affect the overall satisfaction of online consumers. On the other hand, Feature Availability and Consumer Continuation were found to moderately affect the overall satisfaction of customers using Online or Internet banking services. In order to promote customer satisfaction, it is inevitable for banks give due emphasis to all the above-mentioned factors.

Dilara Aydin⁶ in the paper published in 2014, ***“Customer Perception towards the Internet Banking Services performed by the Turkish banking system”***, investigates the perception of customers regarding internet banking services the factors that affect its usage. The finding showed that awareness has no effect on customer satisfaction whereas factors like ease of use, cost, accessibility, security have positive effects on customer satisfaction.

Dr. P. Venugopal published a paper in Nov 2013 titled ***“Customer's Perception on Electronic Banking -A Study on Tirupati Area of Andhra Pradesh, India”*** found that the major Internet Bank concern amongst customers in Tirupati was the safety and security of the service, which forms a real obstacle to use the service. The research also found that even most of those who frequently use the Internet Bank services, usually do not conduct much of transactions, but find the service very useful for checking their account status. Based on the results found in this paper, it is strongly believed that ensuring the security of Internet Bank and familiarizing customers with how to use the service will definitely increase the rate of using Internet Bank services.

Ms Fozia⁸ in Sept 2013 conducted a study of ***“A Comparative Study of Customer Perception toward E banking services provided by private and Public sector banks”***. The result of the study clearly shows that different age group of customer and different

occupation group of customers have different perception toward the e-banking services. The results also propose that demographic factors impact significantly internet banking behaviour, specifically, occupation and age. Finally, this paper suggests that an understanding about the customer's perception regarding the e-banking services of public and private banks it will help to the banker to understand the customers need in better way.

Harinder S Gill and Saurabh Arora⁹ in 2013 reveal in their paper "*Study of Customer Satisfaction :A comparison of Public and Private Banks*", that though Public sector banks lack in technology as compared to private banks but they enjoy customer faith . PrivateBanks give better technology and more options of investments.

Ashwin G Modietc.¹⁰ in their Research Note titled, "*Acceptance of Internet Bankingamong Retail Customers: Survey Evidence form AhmedabadRegion*"¹⁰ had the main aim to find out the factors that affect the acceptance of online banking by retail customers. Theempirical data was analysed using frequencies, percentage, and reliabilitytest and factor analysis. The study revealed that customer awareness, trust, intention convenience, information about internet had significant effect on retail customer to accept internet banking.

Nyasha Kaseke, Amos Charira. Noel Muzondo¹¹ in 2012, publisheda paper titled "*Virtual Banking by Commercial Banks and Customer Satisfaction*" in which they revealed that customers are satisfied with Virtual Banking. The main factors satisfying the customers were convenience, service points always up, banking solutions are cheap, instant update by banks, money is secure, and confidentiality. The study concluded that the concept of Virtual Banking has been accepted by customers and customers are satisfied with the banking model. The researchers recommended that there is need to create awareness by commercial banks and improve access to technology for the customers to realise full benefits and improve levels of satisfaction with Virtual Banking.

Vivek Uprit¹² in 2012 published research work," *Satisfaction and Effectiveness of Virtual Organization in Excess of Real Organization (A study of selected Commercial Banks in India)* whichstudies the comparatively study of real banking & virtual banking in India and its role in fostering relationships with customers and giving them more value. It is seen that from the study that the variable Usefulness has a positive influence on virtual banking use, therefore virtual banking acceptance would be increase when customers find it more usefulness. Social Status were identified the positive affect of virtual banking system.

Ms Nazneen Shaikh and Mr Mehul Mehta¹³ in the year 2012 published paper titled "*Demographic Characteristics of Customer's Effect Services of Internet Banking With Reference To Selected Banks at Ankleshwar*" by tried to understand the impact and perception of variables towards internet-banking on customer satisfaction at Ankleshwar. The results showed that the prospects for internet banking is also bright as internet banks are found to be preferable distribution channel among the customer who wish to get financial needs satisfied at one place along with enjoying the advantage of reduce cost, more convenience and easy accessibility. With more initiative and focus in the specified to avail internet banking services. With area the internet banks can even have the potentially of making more customers to avail internet banking services. With emergence of new technology, it can also take the advantage of more customer base and can become more competitive. Thus with its increase in the existing performance, in the upcoming years, internet banks will definitely play a predominant role in the banking industry and thereby can contribute more to the upliftment of the bank.

Dr. A. Jayakumar and Mr. L. Kannan¹⁴ in 2012 by their research paper, "*Electronic Banking Services for Banking Sectors*" suggested that E-Banking systems can vary significantly in their configuration reliant on a number of factors. Financial institutions should select their E-Banking system configuration, including outsourcing relationships, based on the basic factors influencing its effectiveness. Through a combination of internal and external solutions, management has various alternatives when determining the overall system configuration for the various components of an E-Banking system. However, for the sake of simplicity, this paper offerings only two basic variations. First, one is more technology service providers can host the E-Banking application and numerous network components. Second, one is the institution can host all or a big portion of its E-Banking systems internally.

Geetika, Deepesh Tiwari and Preeti Gupta¹⁵ in April 2012 by their research paper, "*A Study of Indian Consumers' Perception on Telemarketing*" endeavoured to know the perception and attitude of the customers towards telemarketing; benefits derived by the company in the perception of customers and an overall assessment of this marketing tool. The paper describes the state of mobile telephony in India followed by a survey conducted through personal contacts using structured questionnaire. The findings of the survey have given mixed response leading to the conclusion that marketers have to work harder to make this tool more effective.

Jagdeep Singh¹⁶ in the research paper titled, "*Scenario of E-Banking in Today's Life, A survey*", studied the scenario of e-banking. In this study opinion of 100 customers from Ludhiana, India in the year 2012 were taken. The results revealed that People are aware of e-banking, but not fully. The Customers are at ease after using e-banking, it saves the precious time of the customer. It has also been found that Customer satisfaction varies according to age, gender, occupation etc. E-banking has increased the pace of transaction and Customer perception is that e-banking has made the life easy.

Also, in 2012, **Shaoyi Liao, Yuan Pu Shao, Ada Chen**¹⁷ in their paper titled "*The Adoption of Virtual Banking in China: An Empirical Study*", examined the trends in the Internet revolution that have set in motion in the Chinese banking sector, and reports on an empirical research carried out in China to study the customers' preference for virtual banking and the factors which they consider influence the adoption of virtual banking. This study shows that Internet accessibility, awareness, attitude towards change, computer and Internet access costs, trust in one's bank, security concerns, ease of use and convenience are the major factors affecting the adoption of Internet bank services in China.

R. K. Uppal¹⁸ in his paper "*E-Age Technology—New Face of Indian Banking Industry: Emerging Challenges and New Potentials*" (2011), analyzes the performance of major banks in terms of productivity and profitability in the pre and post e-banking period. The paper concludes that transformation is taking place almost in all categories of the banks. This transformation will be helpful to cope with new economic and financial policies of the banks. IT is playing a crucial role to create the drastic changes in the banking industry particularly in the new private sector and foreign banks. The private banks take a big share of cake; our public sector banks are still lagging behind regarding the various financial parameters. The immense opportunities are also available for the public sector banks if they change/modify and adopt new policies to combat the different recent challenges.

Ioannis Kskosas¹⁹, from the University of Western Macedonia, Kozani, Greece, in the year 2011 in his research paper, "*The Pros and Cons of Internet Banking: A Short Review*", reviewed to show an alternative to banking through "bricks and mortar" and provide an understanding of the pros and cons of going online. Many traditional banks offer some online services, but the very cheapest choices some will find are internet-only banks, which operate specifically online. Customers can get the same services online that are used to from traditional banks, such as checking and savings accounts, CDs, and other financial products and services. Those who are interested in paying lower fees for better customer service, they should investigate internet banking. The choice of whether or not to bank over the internet depends on many variables. Even if a customer can see benefits, he may be unwilling if he does not trust or have much experience with the internet. At the other end of the spectrum, people may sign up for limited services like account viewing. This will save them from safety concerns but will give them daily access to account activity. If the customer decides that internet banking is right for him, he must be sure to review other offers from several banks. Each bank has different fees and advantages that can make a big difference in how much internet banking costs. By comparing deals and being educated, a customer can find an internet banking service that suits his needs.

Akram Jalal, Jassim Marooq, Hassan A Nabi²⁰ in the paper titled "*Evaluating the Impacts of Online Banking Factors on Motivating the Process of E-banking*" (2011) explored and measured the impact of selected factors on the customers' intention to use internet banking in Bahrain. Three factors are tested, that is perceived usefulness (PU), perceived ease of use (PEOU), security and privacy (PC). *Findings* – Results indicate that all the elements for the three identified factors are important with respect to the users' adoption of e-banking services. Credibility factors (Security and Privacy) are the major sources of dissatisfaction, which have remarkably impacted users' satisfaction. In the meantime, perceived ease of use (PEOU) and perceived usefulness (PU) are sources of satisfaction. The results also disclose that security and privacy factors play an important part in determining the users' acceptance of e-banking services with respect to different segmentation of age group, income level and level of education.

Another paper by **Sufyan Habib**²¹ in 2010, "*Internet Banking in India Consumer Concerns and Bank Marketing Strategies*" presents the data, drawn from a survey of Internet banking consumers and the services providers (banks) that offer internet banking and develops a functional model for maximizing value to the consumers, which the banks may choose to adopt Internet banking strategically. The paper identifies the weaknesses of conventional banking and explores the consumer awareness, use patterns, satisfaction and preferences for internet banking vis-à-vis conventional form of banking and also highlights the factors that may affect the bank's strategy to adopt Internet banking. It also addresses the regulatory and supervisory concerns of internet banking. It can be concluded that internet banking in India is only at its primitive stage dominated by the Indian private and foreign banks. The use of Internet banking is confined to a few consumer segments. The risks associated with internet banking are many, which the banks have to model using sophisticated systems and extensive use of technology. The legal framework as it exists requires an updating to streamline and handle the issues associated with Internet banking. The functional model can be used to prioritize perceptual variable concerning consumer behaviour so that value to the consumer can be maximized. The banks can focus on strategic consumer groups to maximize its revenues from internet banking. The

experiences of the global economies suggest that banks cannot avoid the internet banking phenomenon, but to gain a competitive advantage, they must structure their business models to suit to Indian conditions.

Nour-Mohammad Yaghoubi and Ebrahim Bahmani²² published, “*Factors Affecting the Adoption of Online Banking - An Integration of Technology Acceptance Model and Theory of Planned Behaviour*” in Iran (2010). This study aims to investigate the factors influencing the adoption of online banking services. It also aims at understanding the reasons for resistance to use online banking that would be useful for bank managers in formulating strategies aimed at increasing online banking use. Accordingly, in the planning and development of online banking, software developers should pay attention to practical functions and extend key features that are frequently required. The results shows that online banking services adoption can be explained in terms of perceived behavioural control, perceived usefulness, perceived ease of use, subjective norm and attitude.

Minakshi Bhosale and Dr. K.M. Nalawade²³ in their research paper titled “*E Banking Services: Comparative Analysis of Nationalised Banks*” (2010) studied the Internet based electronic banking applications the emergence of new forms of technology has created highly competitive market conditions for bank providers. However, the changed market conditions demand for banks to better understanding of consumers' needs. Hence this paper outlines the concept of E-banking with advantages and disadvantages. Successful introduction of the e-banking will expedite the economic and social progress of the country. Government should, therefore, establish or facilitate the establishment of the required educational institution and favourable legal and environmental framework for the e-banking. In brief the study leads to conclude that in view of the technology transfer, the world could not be divided according to the development status of developed and developing countries. Just on the contrary, modernization of the economy through transfer and adaptation even of the most developed technology help ultimately expediting the economic progress and removing the development gap between developed and under developed countries.

In 2010, **Bander A. Alsajjan and Charles Dennis²⁴** in their research work “*The Impact of Trust on Acceptance of Online Banking*” introduced a tentative conceptual framework in which Trust will be integrated into the Technology Acceptance Model – TAM - (Davis, 1989). Recent research showed that Trust has a striking influence on user willingness to engage in online exchanges of money and personal sensitive information Trust plays an important role in increasing the usability under the online banking environment The contribution of this article comes from extending TAM by integrating Trust as a social construct and considering the characteristics of the online banking environment. This study could help banks to refine their strategic planning and enhancing their competitive advantage.

Shilpan Vyas²⁵ in the research paper titled in 2009, “*Impact of E-Banking on Traditional Banking Services*” analysed that E-banking is a borderless entity permitting anytime, anywhere and anyhow banking and facilitates people with all the functions and many advantages as compared to traditional banking services. Controls that could mitigate or eliminate the identified risks, as appropriate to the organization's operations, are provided. The goal of the recommended controls is to reduce the level of risk to the IT system and its data to an acceptable level.

Andrew Musiime and Malinga Ramadhan²⁶ of **Kampala International University, Ugandain2010**, published research paper "*Internet banking, consumer adoption and customer Satisfaction*". The research focused on the general population of Bank X using Internet banking services in Kampala city. Although the findings of this research revealed positive responses which were slightly above average, the bank should not be complacent; instead it should be creative and innovative creating new products or services and marketing strategies that can stimulate the demand to use Internet banking services. This research finding also shows that there was a significant relationship between Internet banking and customer satisfaction, whereby they were committed to using the service, as well as there was an evident that the bank was able to retain the majority of its Internet banking service users.

Muniruddeen Lallmahamood²⁷ published research work, "*An Examination of Individual's Perceived Security and Privacy of the Internet in Malaysia and the Influence of This on Their Intention to Use E-Commerce: Using An Extension of the Technology Acceptance Model*". This study explores the impact of perceived security and privacy on the intention to use Internet banking. An extended version of the technology acceptance model (TAM) is used to examine the above perception. The findings suggest that Internet banking sites or portal developers should provide useful and easy to use features on their Web sites to encourage users to adopt the services. It was also found that respondents put much emphasis on issues like convenience and security level password in conducting Internet banking transactions. Also trying to minimize or resolve security concerns and privacy protection are perceived to be part of the overall service to customers by Internet banking service providers.

K.T. Geetha¹ & V.Malarvizh²⁸ in the research paper titled, "*Acceptance of E-Banking among customers (An Empirical Investigation in India)*" (2008) investigate the factors which are affecting the acceptance of ebanking services among the customers and also indicates level of concern regarding security and privacy issues in Indian context. The finding depicts many factors like security and privacy and awareness level increased the acceptance of e-banking services among Indian customers. The finding shows that if banks provide them necessary guidance and ensure safety of their accounts, customers are willing to adopt e-banking.

Baytoah Akbari Moghadamand Mehdi Behboudi²⁹, in 2010 published the paper titled "*Does Internet Advertising Affect the Internet Banking Effectiveness? A Three Dimensional Model for Iran*" which aimed to build a three-dimensional model (factors to adopt Internet banking, Internet advertising effects, and Customer pleasure) to examine the impact of Internet advertising on the Internet banking in order to find possible solutions in this area of banking. In order to create pleasure in banking users, the banking system can attempt to attract and retain customers for more electronic transactions, through creating joy and hope in customers towards Internet banking by customer advisement and raising customer awareness. The findings also show that increasing the customer's arousal by Internet advertisements to use Internet banking as well as creating a positive attitude toward bank's brand are the key factors in Internet banking effectiveness.

B K Jha, S L Gupta and Piuneet Yadav³⁰ published "*Use and Effectiveness of New Technologies in Indian Banking Industry*" in 2008. The main intention was to study awareness, expectation and acceptance levels of customers with respect to use and effectiveness of new technologies. The study concluded that the hectic lifestyle where time

is scarce resource is motivating people to use new technologies in banking and technological gadgets have gained popularity too. Data mining and warehousing is very important for banks to take business decisions but unawareness still compels customers to not use new technology.

Rajesh Kumar Srivastava³¹ published a paper in the year 2007 titled "**Customer's perception on usage of internet banking**", the research study revealed that education, gender, income play an important role in usage of internet banking. Not much research has been done on these areas as they were focused more on the acceptance of technology rather than on people. The research corroborated the conceptual framework stating that if skills can be upgraded there will be greater will to use internet banking by consumers. Inhibitory factors like trust, gender, education, culture, religion, security, and price can have minimal effect on consumer mind-set towards internet banking.

References

1. Dr. Uday Singh Rajput (2015). Customer perception of E-banking service. Pacific Business Review International. Vol. 8(4). Pg. 85-94.
2. D.N.V Krishna Reddy, Dr. M Sudhir Reddy (2015). A study on Customers Perception and satisfaction towards Electronic Banking in Khammam District. IOSR Journal of Business and Management. Vol. 17(12), Pg. 20-27.
3. M.E.Dodda Raju, Dr.T.Narayana Reddy (2014). Customer Perception Study-Towards E-Banking Services of Public and Private Sector Banks - With Special Reference to Chittoor District of Andhra Pradesh. Vol. 2(3).
4. Malika Rani (2012). Study on Customer perception towards E banking in Ferozepur Dist. International Journal of Multidisciplinary Research. Vol. 2(1). Pg.108-118.
5. Mr. Lakshmi Narayana.K, Mr. Sri Hari.V, Dr.P. Paramashivaiah(2014). A Study on Customer Satisfaction towards Online Banking services with reference to Bangalore city. Acme Intellects International Journal of Research in Management. Vol.2 (2).
6. Dilara Aydin (2014). Customer Perception towards the Internet Banking Services performed by the Turkish banking system. Presented in Institute of Graduate Studies and Business.
7. P Venugopal (2013). Customer's Perception on Electronic Banking -A Study on Tirupati Area of Andhra Pradesh, India. International Journal of Management and Social Science. Vol.01 (06).
8. Ms Fozia (2013). A Comparative Study of Customer Perception toward E banking services provided by private and Public sector banks. International Journal of Scientific and Research Publications. Vol. 3(9).
9. Harinder S Gill and Saurabh Arora (2013). Study of Customer Satisfaction: A comparison of Public and Private Banks. Pacific Business Review International. Vol.6 (6).
10. Ashwin G Modi, Kiran J Patel and Kundan M Patel (2013). Acceptance of Internet Banking among Retail Customers: Survey Evidence from Ahmedabad Region. The IUP Journal of Bank Management. Vol. XII (1).Pg. 63-71.
11. Nyasha Kaseke, Amos Charira, Noel Muzondo (2012). Virtual banking by Commercial Banks and Customer Satisfaction in Zimbabwe. International Journal of Advanced Research in management and Social Sciences. Vol.1 (2). Pg. 234-252

12. Vivek Uprit (2012). Satisfaction and Effectiveness of Virtual Organization in Excess of Real Organization: A study of selected Commercial Banks in India. *Journal of Internet Banking and Commerce* Vol. 17(1).Pg. 2-9.
13. Ms Nazneen Shaikh and Mr Mehul Mehta (2012). Demographic Characteristics of Customer's Effect Services of Internet Banking With Reference To Selected Banks at Ankleshwar. *Global Research Analysis*. Vol.1 (7).Pg. 96-102
14. Dr. A. Jayakumar and Mr. L. Kannan (2012). Electronic Banking Services for Banking Sectors. *International Journal of Multi-disciplinary Research*. Vol. 2(9).
15. Geetika, Deepesh Tiwari and Preeti Gupta (2012). A Study of Indian Consumers Perception on Telemarketing. *International Journal of e-Business, e-Management and e-Learning*. Vol 2(2).
16. Jagdeep Singh (2012). Scenario of E-Banking in Today's Life, A survey. *International Journal of Computing and Business Research*. ISSN Online 2229-6166.
17. Shaoyi Liao, YuanPuShao, Ada Chen. "The Adoption of Virtual Banking in China: An Empirical Study". *International Journal of Information and Management*, Vol. 19(1).
18. R. K. Uppal (2011). E-Age Technology—New Face of Indian Banking Industry: Emerging Challenges and New Potentials. *Journal of Social and Development Sciences*. Vol. 1(3). Pg. 115-129.
19. Ioannis Kskosas (2011). The Pros and Cons of Internet Banking: A Short Review. *Business Excellence and Management*. Vol.1 (1).Pg. 49-58.
20. Akram Jalal, Jassim Marooq, Hassan A Nabi (2011). Evaluating the Impacts of Online Banking Factors on Motivating the Process of E-banking. *Journal of Management and Sustainability*. Vol.1 (1).Pg. 32-42.
21. Sufyan Habib (2010). Internet Banking in India Consumer Concerns and Bank Marketing Strategies. *Research Journal of Management Sciences*. Vol. 1(3).Pg. 20-24
22. **Nour-Mohammad Yaghoubi and Ebrahim bahmani (2010). Factors Affecting the Adoption of Online Banking - An Integration of Technology Acceptance Model and Theory of Planned Behaviour.** *International Journal of Business and Management*. Vol. 5(9). Pg. 159-165.
23. Minakshi Bhosale and Dr. K.M. Nalawade (2010) E Banking Services: Comparative Analysis of Nationalised Banks. *Abhinav: Journal of Research in Commerce and Management*. Vol. 1(11). Pg. 210-219.
24. Bander A Alsajjan, Charles Dennis (2006). The Impact of trust on Acceptance of Online Banking. *European Association of Education and Research IN Commercial Distribution*, West London. 27-30 June 2006.
25. Shilpan Vyas ((2012). Impact of E banking on Traditional Banking. *International Journal of Computer Science and Communication Networks*. Vol. 2(3).
26. M Ramadhan (2011). **Internet banking, consumer adoption and customer Satisfaction.** *African Journal of Marketing Management*.
27. Muniruddeen Lallmahamood (2009). An Examination of Individual's Perceived Security and Privacy of the Internet in Malaysia and the Influence of This on Their Intention to Use E-Commerce: Using An Extension of the Technology Acceptance Model. *Journal Internet Banking and Commerce*. Vol. 12(3). Pg. 3-25
28. K.T. Geetha & V.Malarvizh (2008). Acceptance of E-Banking among customers (An Empirical Investigation in India). *Journal of Management and Science*. Vol. 2(1).Pg.1-7.

29. Baytoah Akbari Moghadamand Mehdi Behboudi (2008). **Does Internet Advertising Affect the Internet Banking Effectiveness? A Three Dimensional Model for Iran.** *Journal of Internet Banking and Commerce*. Vol. 17(3).
30. BK Jha, SL Gupta, Puneet Yadav (2008). Use and effectiveness of new technologies in Indian banking: A study. The ICFAI University Press.
31. Rajesh Kumar Shrivastava (2007). Customer's perception on usage of Internet Banking. *Innovative Marketing*. Vol. 3(4).

Mahatma Gandhi National Rural Employment Guarantee Programme and Employment Opportunities In Lalgudi Taluk, Tiruchirappalli District

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Everyone knows about MGNREGA, as it is the best job guarantee scheme of India, from February 2006, the MGNREGA is designed to provide job guarantee for at least 100 days in rural parts of the country through this scheme, all the adult members (at least 18 years of age) of the any family in rural part of the country are given unskilled work. The Mahatma Gandhi National Non-urban Career Assurance Act (MGNNCAA) is an Indian job guarantee programme, presented by regulation on August 25, 2005. The programme provides a legal guarantee for one hundred days of occupation in every financial year to mature associates of any rural family willing to do public work related inexperienced guide perform at the legal lowest salary of INR 120 per day.

MGNREGA, was presented with an aim of helping the buying power of the rural individuals, mainly partial or unskilled perform to individuals living in rural parts of the country, whether or not they are below the hardship line. About one third (1/3 rd) of the predetermined workforce is women. The law was originally known as the Nationwide Non-urban Career Assurance Act (or NREGA) but was renamed on 2nd October 2009. In the year 2011, the programme was commonly criticized as no more effective than other hardship decrease programme in the country of India. Regardless of its finest objectives, popular MGNREGA is beset with debate about damaged authorities, lack funding as the source of resources, low quality of facilities designed under this programme.

Objectives

MGNREP which is the largest work guarantee programme which in the world was enacted in 2005 with a primary objective of guaranteeing 100 days of wage employment per year to rural households. Secondly, it aims at addressing causes of chronic poverty through the "works" (project) that are undertaken and thus ensuring sustainable development. Finally, there is an emphasis on strengthening the process of decentralization through giving a significant role of Panchayat Raj Institutions (PRIs) in planning and implementing these works.

Key Features

- **Legal right to work**

The act provides a legal right to employment for adult members of rural households. Atleast one-third beneficiaries have to be women. Wages must be paid according to the wages specified for agricultural labourers in the state under the Minimum, Wages Act 1948 unless the Central Government notifies the wage rate. (It should not be less than Rs.60 per day) At present wage rate are determined by the Central Government but vary across state ranging from Rs.135 to Rs.214 per day.

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- **Time bound guarantee of work and unemployment allowance**

Employment must be provided with 15 days of being demanded failing which an "unemployment allowance" must be given.

- **Decentralized planning**

Gram Sabhas must recommend the works that are to be undertaken and at least 50 per cent of the work must be executed by them. Panchayat Raj Institutions (PRIs) are responsible for planning, implementation and monitoring of the works that are undertaken.

Funding of MGNREGP

Funding is shared between the Centre and the States. There are three major items of expenditure - wages (for unskilled, semi-skilled and skilled labour), material and administrative costs. The Central Government bears 100 per cent of the cost of unskilled labour, 75 per cent of the cost of semi-skilled and skilled labour, 75 per cent of the cost of materials and six per cent of the administrative cost.

Achievements of MGNREGP

- Ensuring livelihood for people in rural areas.
- Large scale participation of women, scheduled castes and scheduled tribes, SC / ST account for 51% of the total person — days generated and women account for 47% of the total person — days generated.
- Increasing the wage rate in rural areas and strengthening the rural economy through the creation of infrastructure assets.
- Facilitating sustainable development.
- Strengthening PRIs by involving them in the planning and monitoring of the scheme.

Priority of work under MGNREGP

- Formation of new ponds.
- Renovation of existing ponds, Kuttais, Kulams, Oorannies, and Temple tanks etc.
- Desilting of channels.
- Desilting and strengthening of bunds of irrigation tanks.
- Formation of new roads.
- Other water conservation / soil conservation measures / flood protection measures.

Wage Rates under MGNREGP (RS. per day) in Tamil Nadu

The wage rate per day under MGNREGP is varying from one state to another. At present in Tamil Nadu, the prevailing wage rate per day irrespective of the nature of work, it is fixed as Rs.132/- The highest wage rate is fixed in Kerala is Rs.164/-. The wage rate per day also varies from one region to another region and also taluk to taluk and district to district. And it is also found that equal wage rate is given to both men and women. It guarantees the right to work for 100 days in a year for any rural household. There is no limit of APL or BPL. For getting work under MGNREGP, the villagers have to apply to the Gram Panchayat for registration. Gram Panchayat issues a job card within 15 days after the villager's registration.

Suggestions

- Strengthen the Panchayati Raj Institutions by providing them requisite technical and social human resource so that plans can be made and implemented genuinely bottom-up.
- There is a need for a reformed schedule of rates. Gender, ecology and labour-capacity sensitive schedule of rates that are themselves indexed to the real

minimum wage, undergoing revisions with each revision in the statutory wage. Otherwise, complaint of underpaid labour will never cease.

- The role of civil society is crucial in making MGNREGP realize its potential. Civil society needs to adopt a strategy of dialogue and support to make MGNREGP a success.

Conclusion

There should be an institutional mechanism to train the people joining the MGNREGP in some skilled, like masonry, carpentry, plumbing work, tailoring or any that would give them a better and permanent job in their own region. The unemployed rural masses should be skill-trained to contribute to maintain India's growth rate and its forward march to an economic superpower by creating an intermediary labour force from them. They should not be allowed to remain tillers and mud carriers their entire life. This will only perpetuate a "caste system" of another kind. Of the 100 days of assured job, 10 to 15 days should be devoted to paid training programmes. They should be made competent enough not to go back to MGNREGP the next season.

Otherwise, the programme will remain as an unsustainable stop-gap arrangement and the people will remain poorer. Unless there is demand for skilled labour, especially from the private sector, these plans will remain just plans. The key is to ensure a tight fit between private needs and the government efforts. An employment scheme for urban India should go beyond the present scope of public and address urban demands. For instance, urban renewal and restoration projects that builds on the conceptual framework of rural public works but is in tune with urban necessities merit consideration. An important requirement for a successful scheme is the involvement of local bodies, as they are closer to the problem. Empowering local bodies to create jobs in education and healthcare, and other public services, will cater to the varied requirements of urban job seekers and serve as an efficient starting point. However, wage employment schemes supported by government can only offer transitional solutions. The government should simultaneously address skills-shortage and create the environment necessary for fostering economic development.

References

- Manickam .S., "Panorama of Indian Economy", First Edition, 2010, Chennai.
- Ishwar C. Dhivgra, "The Indian Economy, Environment and Policy", 27th Edition, 2012, Sultan Chand & Sons, New Delhi.
- Narayan K.S. (2008), "National Rural Employment Guarantee Act 2005" — Poverty.
- Mohinder Singh & Dr.Vijaykumar (2009), "Implementation of NREGS in Haryana", Kurukshetra, Vol.57, No.8.

Effect of Parameters of Friction Stir Welding On Weld Quality

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Abstract

Aluminium alloys are most widely used in automobile, aerospace and marine industries these days because of their high strength to low weight ratio, high corrosion resistant etc. This research paper reviews the study of various research has been done by researchers to join aluminium alloys by friction stir welding. The study consisting of the input parameters with their values, output parameters, and the result concluded by the researchers in their investigations. This study reveals the weld quality of different type of aluminium alloys by friction stir welding and the effect of various parameters of friction stir welding on the weld quality while joining aluminium alloys. The study shows that ultimate tensile strength, fatigue strength, elongation and hardness are the most important response parameters of weld joint and optimized by the researchers.

Key Words: Tool rotation speed (TRS), Welding speed (WS), Ultimate tensile strength (UTS)

1. Introduction

Friction stir welding is a type of solid state welding technique in which the metal is joined without melting. Friction stir welding process was invented in 1991 by a welding institute named TWI (The Welding Institute). It is a novel welding technique in which a rotation tool is used to produce heat required to join two metal pieces by friction between the workpiece and the tool. Tool used in friction stir welding consisting of some special features having a pin, shoulder and a shank. Rotating tool pin gets inserted in the paring line of the two pieces which are needed to join by friction stir welding. The friction between the tool pin and the work piece material produces the heat that soften the material and rotation of pin mix the soften material and joined them. The shoulder of the tool works as a cap for the material which is extruded out by the pin during welding and produces additional heat.

2. Literature

The literature consisting of the various works which is done by a various researchers for joining aluminium alloys by friction stir welding. Now a day's aluminium alloys are most widely used in the field of automobile, aerospace industries and marine industries because of their light weight and high strength. So welding of aluminium alloys by friction stir welding is a topic of interest for the researchers. This literature describes the effect of the various parameters on the weld quality and strength of joint of different aluminum alloys by friction stir welding.

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Sr.No.	Year	Author	Title of paper	Work-Piece	Input parameters	Output parameters	F i n d i n g
1	2003	Indu A, Nair L, Govilkar C	Optimization of friction stir welding of AA6061-T6	Al 6061 and 20% Al2O3	welding speed , tool shape	Tool wear and the rate of wear	Result shows that tool wear decreases on increasing welding speed
2	2005	Frattini L., Buffa, G.	CFE modelling in friction stir welding of aluminium alloy	AA 6082-T6		strain, strain rate, temperature distribution	A linear regression based an inverse identification approach was used in order to develop the proper material characterization.
3	2007	Schäfer, De Fregine, J.C., Costello?	Influence of shoulder geometry on mechanical properties of friction stir welded AA6082	AA6082	shoulder geometries	transverse Tensile strength, microstructure	The investigation results showed that, for thin sheets, the best joint has been welded by a shoulder with fillet convexity.
4	2007	Zhang H.W., Zhang Z. & Chen J.T.	3D modeling of material flow in friction stir welding under process parameters	AA 6061 -T6	tool rotation speed, welding speed and axial force	material flow	Investigation of material flow in friction stir welding under process parameters
5	2008	Alghamdi, A., Alshaykh, A., Alshaykh, A.	Effect of tool rotation speed on the mechanical properties of friction stir welded AA6082-T6	AA6082-T6	tool rotational speed, welding speed and axial force	tensile strength, hardness and microstructure	The tensile strength of the joint is lower than that of the parent metal. And it is directly proportional to the travel / welding speed.
6	2011	Alshaykh, A., Alshaykh, A., Alshaykh, A.	Theoretical and experimental investigation on friction stir welding of AA 6082	5086 aluminum alloy	Tool rotation speed , welding speed	temperature distribution , yield & tensile effect.	work-hardened and annealed conditions, can significantly affect the final microstructures and mechanical properties of welded alloy.
7	2016	Zhang Z., Xian B.C. & Ma Z.T.	Effect of tool rotation speed on the mechanical properties of friction stir welded AA2219-T6	AA2219-T6	welding speeds, water-cooling and cooling conditions, post-welding artificial ageing	hardness of LZs and tensile strength	A reduction of high welding speed on post-welding artificial ageing process leads to a higher hardness of LZs and tensile strength.
8	2016	Guillo M.& Dubourg L.	Effect of tool rotation speed on the mechanical properties of friction stir welded AA5754-H22	AA5754-H22	rotational speed, traveling speed, tilt angle		The investigation results show that the mechanical properties of the joint are directly proportional to the tool rotation speed.
9	2016	Van D., De L., Nadeau, M., De T.	Effect of tool rotation speed on the corrosion resistance of aluminum alloy	6061 aluminum alloy	welding speed	Potentiodynamic and EIS studies	The study suggests that high quality and better characteristics of thin film on the surface results in high corrosion resistance.
10	2015	RABHANI, G.B.A.I., VANDI, A.	Optimization of friction stir welding parameters for improved corrosion resistance of AA2219 aluminum alloy joints	aluminum alloy AA2219-T6	tool profile (P), rotational speed (N), welding speed (S) and axial force (F)	Corrosion current,	A reduction of high welding speed on post-welding artificial ageing process leads to a higher corrosion resistance.
11	2015	Dingjiao L., Yang X., Zhang X.	Investigation of microstructural evolution in friction stir welding of aluminum alloy 7075-T6	7075-T6 aluminum alloy	Tool rotational speed (rpm), Welding speed (mm/min)	Microstructural characterization, hardness and tensile strength	The microstructural evolution of the joint is directly proportional to the tool rotation speed.
12	2012	Lankin V., Joda E. et al	Friction stir welding of V-1499 high strength aluminum-lithium alloy	4-mm-thick sheet from the casted 100 x 35-mm plate of V-1499 alloy	welded joint: 130 mm/min; the angle of inclination of the tool is 2%; the speed of rotation of the tool -1000 rpm.	FSW - single pass FSW - quenching , artificial ageing FSW - two passes FSW - repair welding by manual repair-welded area welding	1) The experimental results show that the main type of defects are lack of fusion defects, associated with insufficient mixing of the metal, especially in the root part of the welded joint, and cavities formed as a result of overheating the welded metal. 2) The results of investigation of the evolution of microstructure in friction stir welding of V-1499 aluminum alloy under process parameters are presented.
13	2010	Sreetha K., Esh-Dar, S. et al	Development of high strength high conductivity copper friction stir welding	Pre-Cu (90% + 10% - 3 mm in size)	1) Tool rotation speed - 300 rpm 2) Transverse speed- 30, 100, 150, 200, 250 mm/min	1) Microstructural characterization 2) tensile test 3) hardness	1) The mechanical properties of the joint are directly proportional to the tool rotation speed. 2) The electrical resistivity of the processed samples was same as that of the base metal. 3) The hardness of the processed sample was higher than the base metal (65 HV) at all parameters and the hardness increased from 102 to 114 HV with the decrease in grain size.

14	2014	Jain, L., et al.	A Comparison of Double Sided Friction Stir Welding in Air and Underwater for 6mm SS75 Steel Plate	SS75 mild structural steel, 200 x 100 x 6mm (length x width x thickness)	1) travel speed - 100 mm/min. 2) Ultimate tensile strength	Mechanical Properties- 1) Tensile Strength 2) Micro-Hardness	1) Underwater FSW has benefits compared to SAW and FSW in air. 2) FSW underwater reduces arc
15	2015	Baillie, P.	Friction Stir Welding of 6mm thick carbon steel underwater and in air	SS75 hot rolled structural steel	Air FSW- 1) Travel speed: 100 (mm/min) 2) Speed of rotation	1) Distortion 2) Macrostructure	1) Distortion 2) Macrostructure
16	2016	Jain, S., et al	UTS Maximization in Solid State Joining Process for AA6061	AA 6082	1) T R S 2) W S 3) Tool pin length	U T S	
17	2017	Ramesh, R., et al	Microstructure and mechanical characterization of friction stir welded high strength low alloy steels	High strength low alloy HSLA plates Thickness - 3 mm	1) Tool shoulder diameter - 18 mm 2) Tool pin length - 2.7 mm. Pin profile was speed of rotation with a diameter - 1mm 3) Traverse speed - 57.67, 77.876, 97 mm/min	1) Macrostructure of welded joints 2) Microstructure of welded joints 3) Mechanical properties- Tensile strength	
18	2013	Gan, W., et al	Tool materials selection for friction stir welding of LN steel	High strength pipe steel LN80	1) Tool Travel speed - 1.7 mm/s 2) Tool Rotation	1) Thermal couple 2) Thermal analysis	1) The results indicate that the physical wear amounts to a material loss of 7% of the original volume. 2) Mushrooming of the tool was
19	2018	Jain, S., et al	Friction stir welding of AA6061 alloy in air and underwater	AA 5083, AA 6082	1) T R S 2) W S 3) Tool pin profile 4) Tool shoulder dia.	U T S elongation	

Conclusions

1. The welding parameters like tool rotation speed, welding speed, tool shoulder diameter and tool pin profile are most widely used by researchers for optimization.

2. Welding of different grades of aluminium is also good area of interest of many researchers.
3. The addition of reinforcement powder during welding improves the tensile strength, corrosion resistant and wear resistant of the weld joint.
4. Micro structural investigation of weld joint gives the grain distribution during welding and help to investigate the properties of weld joint.
5. For welding AA 2014 aluminium alloy the tool tilt angle of around 3° is recommended for the given value of welding speed of 100 mm/min and tool rotation speed of 1000 rpm to get defect free welds.

References

1. R.A. Prado, L.E. Murr , K.F. Soto, J.C. McClure, Self-optimization in tool wear for friction-stir welding of Al 6061_/20% Al₂O₃ MMC, Materials Science and Engineering ,A349 (2003) ,156-165
2. L. Fratini, G. Buffa ,CDRX modelling in friction stir welding of aluminium alloys,International Journal of Machine Tools & Manufacture ,45 , 2005, 1188–1194.
3. A., Scialpi , L.A.C. De Filippis , P. Cavaliere, Influence of shoulder geometry on microstructure and mechanical properties of friction stir welded 6082 aluminium alloy, Materials and Design, 28 ,(2007) ,1124–1129.
4. H.W. Zhang , Z. Zhang, J.T. Chen,3D modeling of material flow in friction stir welding under different process parameters, Journal of Materials Processing Technology, 183, (2007), 62–70.
5. G. RaghuBabu , K. G. K. Murthi, G. R. Janardhana, An Experimental Study On The Effect Of Welding Parameters On Mechanical And Microstructural Properties Of Aa 6082-T6 Friction Stir Welded Butt Joints, Arpn Journal Of Engineering And Applied Sciences ,2008 , 3 , 68-74.
6. H. J. Aval , S. Serajzadeh , A. H. Kokabi, Theoretical and experimental investigation into friction stir welding of AA 5086, Int J Adv Manuf Technol ,(2011), 52, 531–544.
7. Z. Zhang , B. L. Xiao, Z.Y. Ma, Enhancing mechanical properties of friction stir welded 2219Al-T6 joints at high welding speed through water cooling and post-welding artificial ageing, Materials Characterization ,106, (2015) ,255–265.
8. M. Guillo, L. Dubourg, Impact & improvement of tool deviation in friction stir welding: Weld quality & real-time compensation on an industrial robot, Robotics and Computer-Integrated Manufacturing, 39, (2016) 22–31.
9. N.D. Nam , L.T. Dai , M. Mathesh , M.Z. Bian , V.T.H. Thu , Role of friction stir welding e Traveling speed in enhancing the corrosion resistance of aluminum alloy, Materials Chemistry and Physics ,173 ,(2016) ,7- 11.
10. G. RAMBABU , D. B. NAIK , C.H. V. RAO , K. S. RAO , G. M. REDDY , Optimization of friction stir welding parameters for improved corrosion resistance of AA2219 aluminum alloy joints, Defence Technology ,11 ,(2015) ,330-337.
11. D. Li, X. Yang, L. Cui, F. He, X. Zhang, Investigation of stationary shoulder friction stir welding of aluminum alloy 7075-T651, Journal of Materials Processing Technology, 222, (2015), 391–398.
12. V.I. Lukin, E.N. Ioda , A.V. Bazeskin , I.P. Zhegina , L.V. Kotel'nikova , V.V. Ovchinnikov , Friction stir welding of V-1469 high strength aluminium–lithium alloy , SvarochnoeProizvodstvo, 65, 2012, 45–48.

13. K. Surekha , A. Els-Botes , Development of high strength, high conductivity copper by friction stir processing , *Materials and Design* , 32 , (2011), 911–916.
14. J. S. Leon, V. Jayakumar , Investigation of mechanical properties of aluminium 6061 alloy friction stir welding , *American Journal of Mechanical Engineering and Automation* , 2014, 1, 6-9.
15. Panneerselvam, K., & Lenin, K. (2013). Study on friction stir welding of nylon 6 plates, *I*, 116–120.
16. Jain, S., Rani, P., Gupta, R., Sharma, N., (2016). UTS Maximization in Solid State Joining Process for AA6082. *IOSR Journal of Mechanical and Civil Engineering*. e-ISSN: 2278-1684, p-ISSN: 2320–334X.
17. Gan, W., Li, Z. T., Khurana, S., Gan, W., Li, Z. T., &Khurana, S. (2017). Tool materials selection for friction stir welding of Tool materials selection for friction stir welding of L80 steel, *1718*(May).
18. Bahrami, M., Kazem, M., Givi, B., Dehghani, K., &Parvin, N. (2014). On the role of pin geometry in microstructure and mechanical properties of AA7075 / SiCnano-composite fabricated by friction stir welding technique. *JOURNAL OF MATERIALS&DESIGN*, 53, 519–527.
19. Jain, S., Gupta, R., Sharma, N., (2018). Dissimilar alloys (AA6082/AA5083) were joining by FSW and parametric optimization using Taguchi, grey relational and weight method. *Engineering Solid Mechanics* (2018) 51-66.

Demonetization in India: A Study of Peoples' Perception in Rohtak District of State of Haryana

FALAK*

Abstract

Demonetization refers to Withdrawal of a particular form of currency from circulation. Demonetization is necessary whenever there is a change of national currency. The old unit of currency must be removed and substituted with a new currency unit. India has amongst the highest level of currencies in circulation at 12.1% of GDP. Cash on hand is an estimated at around 3.2% of household assets, higher than investment in equities, or roughly around \$ 220 billion. Demonetization is a process by which a series of currency will not be legal tender. The series of currency will not be acceptable as valid currency. The demonetization was done in Nov 2016 in as an effort to stop counterfeiting of the current currency notes allegedly used for funding terrorism, as well as a crackdown on black money in the country. Demonetization is a generations' memorable experience and is going to be one of the economic events of our time. Its impact is felt by every Indian citizen. In the present paper an attempt has been made to study the perception of peoples on government's move of demonetization.

Key words: demonetization, black money, old currency, counterfeit currency, corruption, Indian economy, government

Introduction

On the evening of 8th November 2016, Indian Prime Minister Mr. Narendra Modi announced a sudden denomination of Rs.500 and Rs.1000 rupee notes. Instead of RBI Governor Urjit Patel, surprisingly Prime Minister announced the news of demonetization that these banknotes would not be legal tender after midnight of the 8th November means the high value notes will not be legal for transaction. Although the old notes can be exchanged till 31st December 2016. There were set an upper limit of cash withdrawals from bank is Rs.10,000 per day (up to Rs.20,000 per week) per account and from ATM Rs.2000 per day per account from 10 to 13 November which is changed from 14 Nov. to Rs.24,000 per week from bank and Rs.2,500 per day from ATM per account till 31st Dec., although a needy person can withdraw with valid reason.

According to RBI report on 31st March 2016, Rs.500 and Rs.1000 banknotes consist around 86% of total cash circulation having value of Rs.15.44 lakh crore. In this process 97% of old notes around Rs.14.97 lakh crore were deposited in bank before 31st December. Irrespective of the widespread anguish and household disturbances, an optimistic sentiment shown in favour of the decision. This move is expected to cleanse the formal economic system and discard black money from the same. The reasons of it are as under:

- To tackle black money in the economy;
- To lower the cash circulation in the country which is directly related to corruption in our country;
- To eliminate fake currency and dodgy funds which have been used by terror groups to fund terrorism in India

History of Demonetization in India

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In India, there were many occasions when high denomination banknotes were demonetized. RBI printed the highest denomination notes of Rs.10,000 in 1938. After that government demonetize Rs.1,000 and higher denomination banknotes in 1946. Higher denomination banknotes (Rs.1,000, Rs.5,000, Rs.10,000) reintroduced in 1954 and all of them were demonetized in 1978 to curb unaccounted money. First time Rs.500 banknotes were introduced in 1987 in order to restrain over increasing banknotes, due to inflation and in 2000 again Rs.1000 banknotes came back in circulation in order to contain the volume of bank notes in circulation, due to inflation. However, Rs.2,000 banknotes were first time introduced in Nov 2016.

Review of Literature

Arpit Guru and ShrutiKahanijow (2010) researcher analyzed the black money income, need for amendment in DTAA & ITEA and analyzed that black money is spread everywhere in India up to a large extent which continuously stashed towards abroad in a very large amount. The researcher also identified how black money had caused menaces in our economy and in what ways it is used.

SukantaSarkar (2010) conducted a study on the parallel economy in India: Causes, impacts & government initiatives in which the researcher focused on the existence of causes and impacts of black money in India. According to the study, the main reason behind the generation of black money is the Indian Political System i.e. Indian govt. just focused on making committees rather than to implement it. The study concludes that laws should be implemented properly to control black money in our economy.

Tax Research Team (2016) in their working paper stated in favour of demonetization. Its main objective is to analyze the impact of demonetization on Indian economy. This paper shows the impact of such a move on the availability of credit, spending, level of activity and government finances.

Objectives of the Study

Following are the objectives of the study:

1. To describe the demonetization concept in India.
2. To study the people's perception on demonetization.

Research Methodology

The present study covers Rohtak district of state of Haryana. A sample of 340 respondents is taken for the present study by random sampling method. All respondents are citizens of India. Primary data is collected through interviewing the respondents by structured questionnaire and secondary data is from journals and magazines. The data collected is analysed using the Percentage method.

Data Analysis and Interpretation

Gender-wise distribution of the Respondents

Table 1: Gender-wise distribution of Respondents

Gender	No. of Respondents
Female	150
Male	190
TOTAL	340

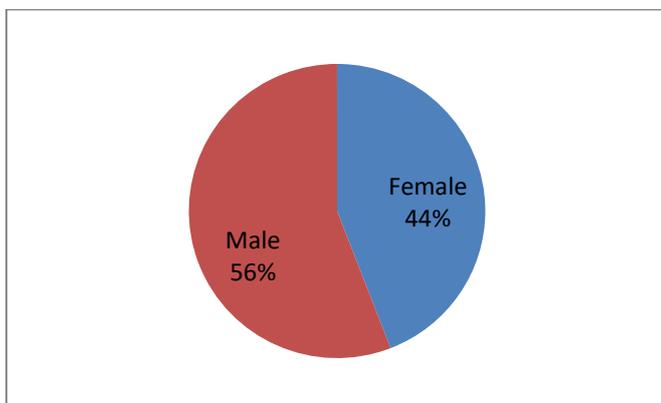


Figure 1: Gender-wise distribution of Respondents

Table 2: Demographic Profile of Respondents

Age wise Distribution of Respondents		
Factors	Male	Female
Up to 25 Years	40	25
26 years to 50 years	95	76
Above 50 years	55	49
Educational Qualification of the Respondents		
Up to School level	47	38
Graduate	108	89
Post Graduate	35	23
Occupation of the Respondents		
Business	67	27
Service	123	92
Unemployed (Housewife)	-	31
Annual Income of the Respondents		
Up to Rs.100000	15	49
Rs.100000-Rs.250000	128	73
Above Rs.250000	47	28

3. Do you in favor of Demonetization?

Table 3: People about Demonetization

Response	No. of Respondents
In Favor	297
Against	43

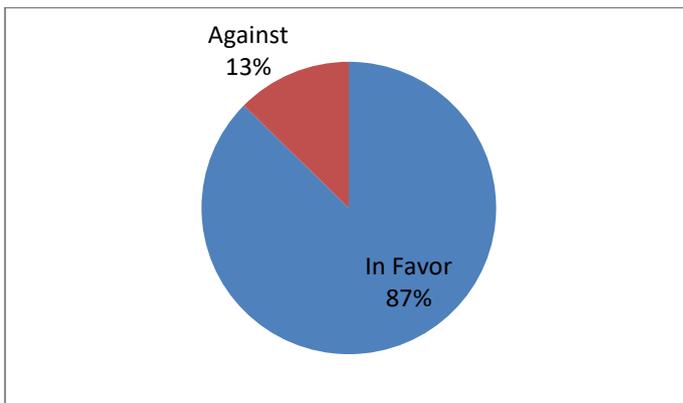


Figure 2: Peoples about demonetization

It is evident from table and figure 87% respondents are in favor of demonetization, though 13% are against the move of demonetization.

4. Do you think People are affected by demonetization?

Table 4: Affected by demonetization

Response	No. of Respondents
Yes	224
No	27
To Some Extent	89

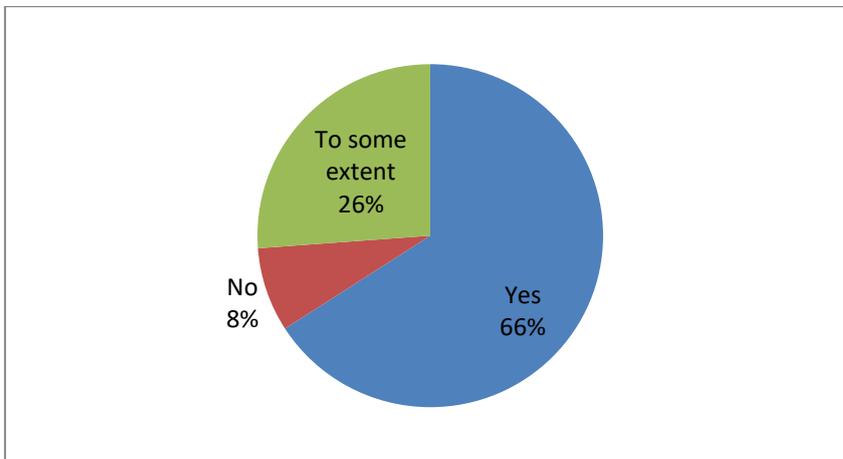


Figure 3: People affected by demonetization

66% respondents have answered the question in positive, while 8% gave their response in negative. 26% respondents have the view that they are affected to some extent.

5. Do you think demonetization helps to destroy Black Money in India?

Table 5: Demonetization helps to destroy Black Money

Response	No. of Respondents
Yes	130
No	187
To Some Extent	23

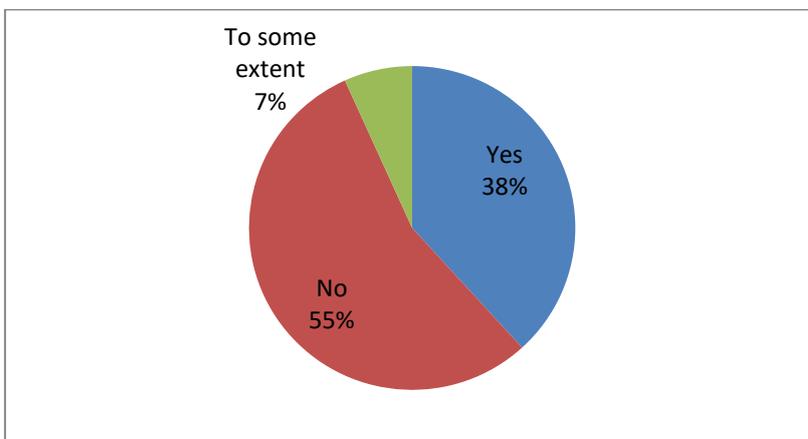


Figure 4: Demonetization helps to destroy Black Money

38% of respondents have the view that demonetization helps to destroy black money. 55% think in opposite, while 7% think it helps to some extent.

6. Do you think demonetization helps to destroy corruption, illegal activities, terrorism etc. in India?

Table 6: Demonetization helps to destroy corruption, illegal activities, terrorism etc

Response	No. of Respondents
Yes	169
No	57
To Some Extent	114

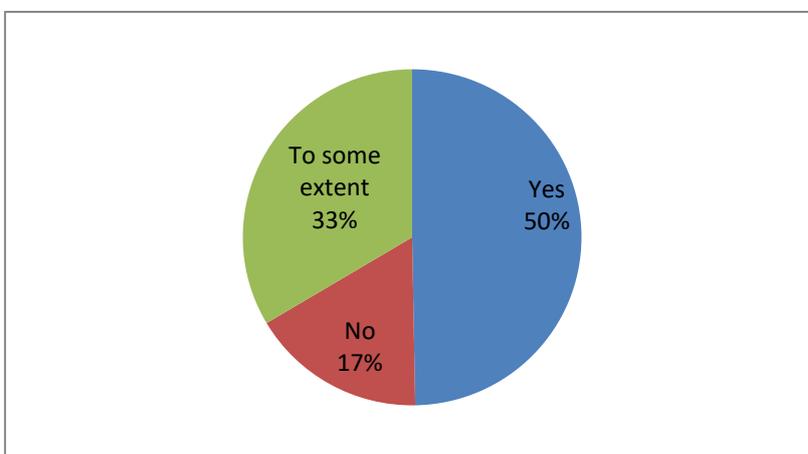


Figure 5: Demonetization helps to destroy corruption, illegal activities, terrorism etc.

Likewise 50% of the respondents think that demonetization helps to destroy corruption, illegal activities & terrorism. 17% think it does not help and 33% think that it helps in some extent.

Table 7: Biggest Troubles faced During Demonetization

Response	No. of Respondents
Long Queues	113
Non-availability of new currency at banks	159
Non-cooperation of bank staff	68

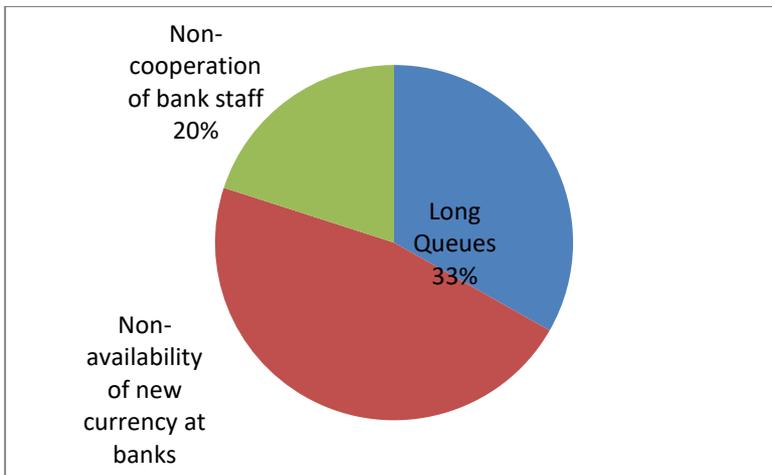


Figure 6: Biggest Troubles faced During Demonetization

33% respondents said that long queues were the biggest trouble during demonetization while 47% said that the biggest problem was non-availability of new currency at bank. 20% respondents were annoyed by the non-cooperation of bank staff.

Table 8: Do you think Demonetization is having a positive impact over banking sector?

Response	No. of Respondents
Yes	187
No	65
To Some Extent	88

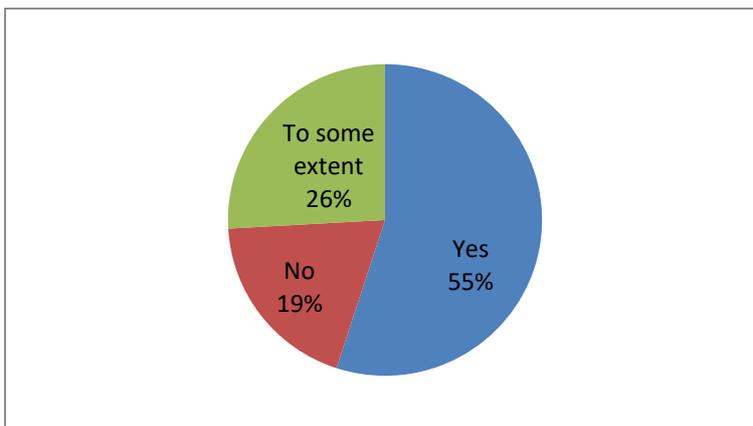


Figure 7: Demonetization is having a positive impact over banking sector

55% of the total respondents believe that demonetization is having a positive impact over banking sector. 19% think in negative. While 26% of respondents feel that it has positive impact to some extent.

Table 9: Do you think there is an impact on Online banking due to Demonetization?

Response	No. of Respondents
Yes	174
No	73
To Some Extent	93

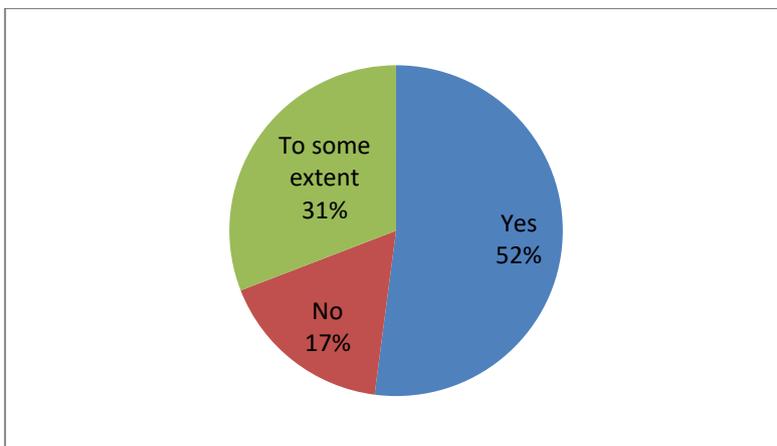


Figure 8: There is an impact on Online banking due to Demonetization

51% respondents have the view that there is impact on the online banking due to demonetization. 21% responses were in negative, though 27% respondents feel that it impacted online transaction to some extent.

Table 10: Do you think government was not prepared enough for post demonetization situation.

Response	No. of Respondents
Yes	198
No	69
To Some Extent	73

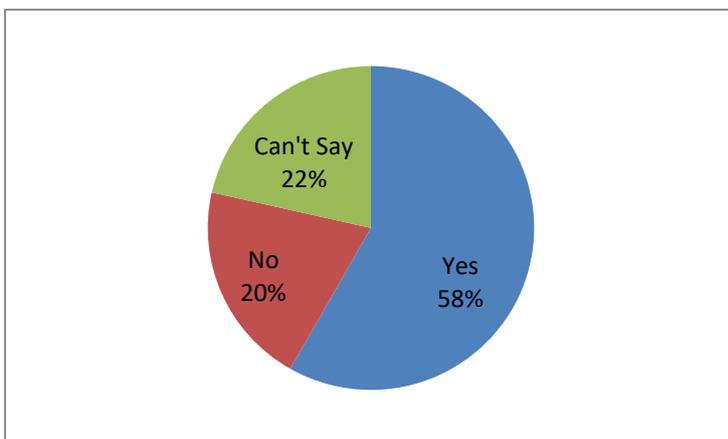


Figure 9: Government was not prepared enough for post demonetization situation.

58% of the respondents have the view that government was not prepared for post demonetization situation. 20% gave answer in negative. 21% respondents are not sure about it.

Table 11: Do you think Indian Economy improved due to various decisions of the current government?

Response	No. of Respondents
Yes	177
No	58
To Some Extent	105

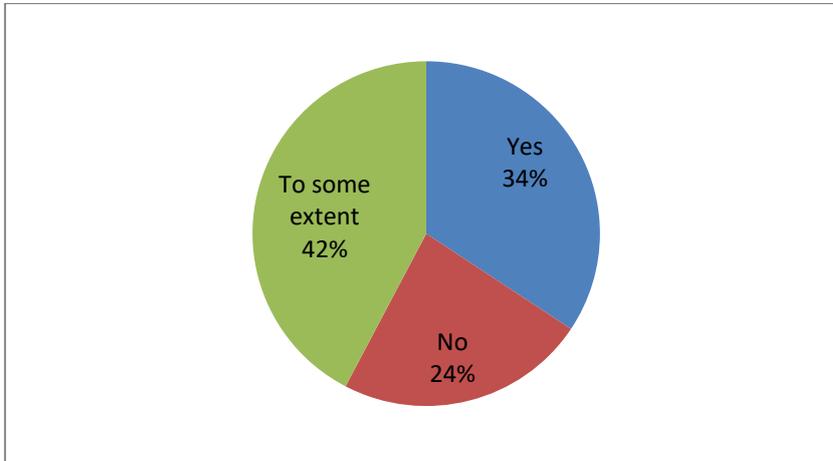


Figure 9: Indian Economy improved due to various decisions of the current government

While asked that Indian economy improved due to various decision of current government, 52% respondents were positive about it. 17% gave their answer in negative. 31% of the respondents feel that Indian economy improved to some extent.

Findings of the Study

- 87% respondents are in favor of demonetization, though 13% are against the move of demonetization.
- 66% respondents feel that they are affected by demonetization, while 8% gave their response in negative. 26% respondents have the view that they are affected to some extent.
- 38% of respondents have the view that demonetization helps to destroy black money. 55% think in opposite, while 7% think it helps to some extent.
- Likewise 50% of the respondents think that demonetization helps to destroy corruption, illegal activities & terrorism. 17% think it does not help and 33% think that it helps in some extent.
- 33% respondents said that long queues were the biggest trouble during demonetization while 47% said that the biggest problem was non-availability of new currency at bank. 20% respondents were annoyed by the non-cooperation of bank staff.
- 55% of the total respondents believe that demonetization is having a positive impact over banking sector. 19% think in negative. While 26% of respondents feel that it has positive impact to some extent.
- 51% respondents have the view that there is impact on the online banking due to demonetization. 21% responses were in negative, though 27% respondents feel that it impacted online transaction to some extent.
- 58% of the respondents have the view that government was not prepared for post demonetization situation. 20% gave answer in negative. 21% respondents are not sure about it.
- 52% respondents were positive about that Indian economy improved due to various decision of current government. 17% gave their answer in negative. 31% of the respondents feel that Indian economy improved to some extent.

Conclusion

The demonetization of the highest denomination note undertaken by the government is a big shock to the Indian. The demonetization is taken for several measures such as tax evasion, counterfeit currency and funding of illegal activities. So far, it can be said that this is a historical step by the Modi Government and should be supported by all. This decision of govt. will definitely fetch results in the long term. From an equity market perspective, this move would be positive for sectors like Banking and Infrastructure in the medium to long term. Alternative payment methods, such as e-wallets, online transactions using e-banking, debit and credit card usage have been increased and this will shift an efficient cashless infrastructure. People think that demonetization is an effective step taken by the contemporary government to strike out the existence of Black money from circulation of Indian economy. Despite facing troubles like long queues in front of banks, non-availability of new currency at bank, non-cooperation of bank staff etc. during the period of Demonetization, most of the people still in the favor of Demonetization.

References

- Akriti & Kaur (2015), "Black money in India: Current Status & impact on Economy" Abhinav National Monthly Refereed Journal Of Research In Commerce And Management. Volume 4, Issue 4, Pg. 34-40
- CA Lalit Mohan Agarwal (2012), edit. "White Paper on Black Money", Journal of Securities Academy & faculty for e-education, vol.72.
- Dhingra, I. C., (2017), Demonetisation: First Step Towards A cashless Economy, Manakin Press Pvt. Ltd., New Delhi.
- Government of India (2016), Annual Report 2016-17, Department of Economic Affairs.
- Government of India (2017) Union Budget Speech by Shri Arun Jaitley, February 2017.
- Government of India (2018), Economic Survey-2017-18.
- Jain, K., (2017), The War On Cash: Demonetisation, Educreation Publishing, New Delhi.
- Nafees. A. Khan, P. T. Chaudhary, "Black Money: Its Impact on the Indian Economy," Tax Reforms in India (Ed.), Srinawas Publications, Jaipur, pp. 150- 155, 2003.
- Sukanta Sarkar (2010). "The parallel economy in India: Causes, impacts & government initiatives", Economic Journal of Development Issues, Volume 11-12 no. (1-2) p.124-134.
- Tax Research Team, Demonetization: Impact on the Economy No. 182 14-Nov-2016, National Institute of Public Finance and Policy, New Delhi

The effect of Relationship marketing Practices on Customer Value Creation in Commercial Banks

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Abstract

Purpose – The purpose of this paper is to find out if Relationship Marketing Practices have any effect on the customer value creation in Commercial banks.

Design/Methodology/Approach – Four drivers of Relationship marketing namely Personalization, Image, and Marketing Efforts and Emotional value were tested to find their effects on Customer Value Creation using Regression Analysis on a data collected from a survey that yielded 109 respondents.

Findings – It was found that Relationship marketing practices enhances value to the customers in the service environment. It was also found that Emotional value and Marketing Efforts are significant drivers of value compared to other factors.

Research implications – The findings can be generalized only to the urban area of Bangalore and not to the larger universe. Only a few drivers of value have been taken up for study. There are many other factors that could add value to the customers which could be tested in further research.

Keywords – Customer Value Creation, Emotional value, Image, Marketing efforts, Personalization, Relationship Marketing Practices.

Paper type – Empirical Research paper

I Introduction

The Banking Industry in India has been grappling with challenges for its survival. The Public Sector undertaking which had been under sheltered environment has now been tossed into the competitive environment due to the Liberalized Policies of the Government. The Technological advancement helps the customers to have a comparative knowledge of various services offered by different players in the market and opting to another service provider is just a click away. The banking industry has been constantly working up towards the techniques of keeping the customers satisfied to prevent any defections.

Relationship Marketing mainly aims to build long term sustainable relationship with the customer for the purpose of satisfying his wants and thus gain loyalty. This requires a complete understanding of the behaviour, needs and preferences of the customer and provide service offering that meets his expectations. To have a good relationship Satisfaction the sellers are obliged to address the needs of the customers and not that of the sellers (David Bejou, 1988) Gilbert and Choi (2003) state that Relationship Marketing Practices, if successfully implemented in the banking sector can facilitate a competitive edge.

The present study focuses on finding out the factors that give rise to customer value creation and whether such factors have significant relationship with value creation.

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II Literature Review

TuliKapil et al, (2007) with an intention of finding out what gives a best solution to the customer have researched into customized supply of goods and services from the firm's perspective and the relational process from the point of view of the customer. They confirm that customers need-definition, the process of service deployment and post deployment support are imperative for effective customer solutions.

Gruner and Homburg, (2000) have analyzed the effect of Relationship Marketing practices and the involvement of the customers on the new product development. Though information exchange and cooperation between the business partners are essential, the input from the end users is absolutely essential. The interaction of the customers from the initial stages till the finishing establishes the success of the product.

Lam, Shankar, et al., (2004) have evolved a conceptual framework that links customer value, satisfaction, loyalty and switching costs in B2B service setting. The study has hypothesized that customer satisfaction mediates in the relationship between customer value and customer loyalty taking the cognition affect behavior model as the basis. The study confirms the mediating role of satisfaction between customer value and customer loyalty.

Oh (1999) has analysed the effect of value with price, performance and service quality on customer satisfaction and loyalty in terms of repurchase and recommend. He states that when service quality affects satisfaction and loyalty, value is antecedent to customer satisfaction and repurchases intention. He has proposed a model wherein perceived price, quality and performance affect customer value and customer satisfaction which stimulates repurchase and recommendation.

Statement of the Problem

Banks are in such a position where they have to continuously meet the demands of the customers in order to prevent any defections. They need to constantly upgrade themselves to be on par with the latest technology to satisfy their customers. In spite of these actions if at any point of time a service failure occurs the only way by which the service providers can regain the confidence of the customers is by way of acquiring customer value. Hence this study is undertaken to find out what constitutes value to customers. Though many researchers have undertaken research on customer value, the factors that are taken up in this study is unique.

Research objectives

1. To identify the factors of Relationship Marketing contributing to Customer value Creation.
2. To determine whether there is significant difference in customer value creation with regard to factors of Relationship Marketing Practices

III Theoretical Background

Customer Value Creation

Creation of value to customers is the essential substance of any business. From customer point of view value is the benefit they receive from products and services whereas from the company's angle it is the satisfaction they are able to bring about on customers. Value is the total experience that a customer gets when a bundle of benefits is given by the firm worth the customer's time and effort (Berry 1996). Respect to customers can influence a company's competitiveness.

Zeithaml (1988) defines customer value as the assessment of benefit that a customer receives from a product as compared to what is given by him. He reiterates that customer value is the antecedent of purchase decision and consequence of perceived service quality. Deepak Sirdeshmuk *et al*, (2002) also concurs with this saying that customer value is the consumers' perception of benefits received relative to the cost spent for maintaining that relationship with the service provider.

Woodruff (1997) posits that to convert customer value into competitive advantage, the firm should focus on what exactly customer values and what the customers think about firm delivering this value to the customer. There may be differences in what customers think they value and what managers think that their customers value which creates a gap. Such gaps can be addressed by obtaining feedbacks with seller contacts from customers and also by surveys and qualitative research.

When it comes to service industry customer is likely to get satisfied if he finds there is value in the service delivery. Woodruff (1997) points out that customer satisfaction measurement without learning about the customer value will not provide guidance to the managers as the customers' voice may not be well represented. He also mentions that though there is a relationship between customer satisfaction measurement and the performance of the firm, such relationship may decline over a period of time if the customers' needs or wants are not kept up with. At times 'service failure occurs due to the Variability and Inseparability features of services. Creation of customer value tends to buffer against these failures. Good customer relationships pave way for greater satisfaction to the customers after service recovery (Hess Jr et al 2003). The study focuses on to find out the effect of the following factors on customer value creation.

Personalisation

Personalisation is one of the key elements of Relationship Marketing Practices that brings about close ties between the firm and the customers. Personalisation is a means to provide the services more effectively and efficiently to satisfy the customer needs through faster communication (Tech target 2007)

Image

The image of the company is a reflection of the knowledge, influence, beliefs, experiences and emotions of a person on the company (Cengiz 2007). The organization takes efforts to project the image of the company in a particular manner but the customer perceives it in a way he actually experiences it. Image is the comprehensive impression of the store as perceived by the customer (Keaveney and Hunt 1992).

Marketing Efforts

Marketing efforts is the sum total of all the efforts of a firm to satisfy the needs of the customers. In banking environment it is the assistance given by the banker in operating of accounts, facilitating money transfer or settlement of standing instructions. It is redefining the banking convenience in terms of offering innovative products and delivering quality service that assures the customers that his wealth is protected and taken care of (Mahtab 2016)

Emotional value

According to (Maul, 2010) Emotional value can be defined as the economic worth of feelings that the customers experience with the product or service offered by the service provider. The expectations of the customers are in terms of emotional competency of the

service providers. Emotional Value along with Functional and Social value lead to customer Retention (Wang *et al.*, 2004)

IV Research Methodology

The data for the study was collected from the customers of 10 banks in the urban area of Bangalore, Karnataka. Questionnaire based method was used for this study. Apart from the demographic profile the questionnaire contained another section on customer value creation. A sample size of 125 customers was selected using random sampling technique. A total of 109 valid questionnaires were collected back which provided a response rate of 87.2%.

The Questionnaire consisted of two sections. The first section contains the items relating to the demographic information about the respondents such as age, gender, qualification and the reason for choosing the bank. The second part of the questions is related to the dependent and independent variables. The measurement of responses was ranging from 1 to 5, where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree. The collected data was analysed using SPSS 16.

Multiple regression analysis was used to report the results of the findings. The analysis was made using the Relationship Marketing Practices as the independent variable and customer value creation as the dependent variable.

Hypotheses

Based on the literature the following hypotheses were formulated

H1: There is a relationship between Relationship Marketing Practices and Customer Value Creation.

H2: Factors of Relationship Marketing Practices create a significant difference in Customer Value Creation.

V Data Analysis

Reliability of the measures was assessed by using Cronbach Alpha's Coefficient.

Table 1: Reliability Statistics

Cronbach's Alpha	No. of Items
.963	56

Source: Field data

The value was determined as 0.963 which explains that the statements in the interview schedule are understood by the customers at 96.3 percent level.

Relationship between Relationship Marketing Practices and customer value creation

An effort was made to determine the relationship between Relationship Marketing Practices and customer value creation. A Regression Analysis of Anova was calculated using customer value creation as dependent variable and Relationship Marketing Practices as independent variable. Table 2 gives the picture of what was obtained.

Table 2: Anova

Model	Sum of Squares	df	Mean square	F	Sig
Regression	63.535	4	15.884	10.592	.000

Source: Field data

Interpretation: It can be observed from the table that with a significance of 0.000 an F Statistic value of 10.592 was obtained implying that there is a significant relationship between Relationship Marketing Practices and Customer value creation.

This answers the first hypothesis of relationship between Relationship Marketing Practices and Customer value creation.

Customer Value Creation with regards to Relationship Marketing Practices

Table 3: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std Error	Beta		
(Constant)	1.840	1.001		1.839	.069
Personalization	.224	.120	.208	1.866	.065
Image	.072	.116	.059	.622	.535
Marketing_Efforts	.182	.088	.219	2.056	.043
Emotional_Value	.226	.097	.245	2.343	.021
R	0.564				
R²	0.318				
P	0.000				

Source: Field data

Interpretation: As can be deduced from table 3 the multi variable linear regression of Personalisation factor X₁, Image factor X₂, Marketing efforts factor X₃ and Emotional Value factor X₄ is illustrated as following equation

$$Y=1.84+0.224X_1+0.072X_2+0.182X_3+0.226X_4$$

Table 3 indicates that R statistic of 0.564 was obtained as the regression coefficient. This represents the coefficient of determination between all the components of customer value creation and relationship marketing practices. This demonstrates that there is a variance shared by the factors that drive relationship marketing and customer value creation. Likewise the R² value of 0.318 was obtained that indicates that all four relationship marketing practices together determine 31.8% of customer value creation.

In the same way an effort was made to estimate how the individual variables contribute to the customer value creation. The highest contributor to customer value creation is Emotional value, followed by Marketing efforts, Personalization and Image.

The findings also reveal that Emotional value and Marketing Efforts have significant relationship with customer value creation with p≤0.05 whereas Image and Personalization are not significant in their relationship to customer value creation.

For every unit increase of Emotional value, Customer Value Creation increases by 0.226 which is in response to the second hypothesis that Relationship Marketing Practices create a significant difference in Customer Value Creation.

Discussion

The main objective of this study is to find out whether Relationship Marketing practices create value to the customers. Among the four drivers that were taken for the study it was found that Emotional value and Marketing efforts have significant influence in creating value to the customers. Customer value creation is gaining importance with its potential as a tool for competitive advantage. Sheth (2002) posits that the objective of Relationship marketing is to increase the customer commitment by offering better value at reduced costs and the findings of the study is in conformity with this statement. However the results of the study are limited to the urban area of Bangalore and cannot be generalized to the universe. The factors taken up for the study contribute only 31.8% to customer value

creation. Various other factors could be taken up to test for value creation in future research.

Conclusion

The services sector is characterized by its features of intangibility, service variability, perishability and inseparability which pose exceptional challenges. Apart from this, the banks face the circumstantial confrontations caused by the new trends in the economy. Indian banking sector, in order to guard itself and move forward need the support of the customers. Building strong relationship with the customer is imperative to gain their confidence and retain them for a longer period. The customers are motivated to build and enhance relationship if they identify value in such a bond.

References

- [1] David Bejou, Christine T. Ennewand, Adrian Palmer (1998). Trust, ethics and relationship Satisfaction International Journal of Bank Marketing 16/4, 170–175
- [2] David C. Gilbert and Karen C. Choi. (2003). Relationship marketing practice in relation to different bank ownerships: a study of banks in Hong Kong. *International Journal of Bank Marketing* 21/3, 137-146.
- [3] Deepak Sirdeshmuk, Jagdip Singh and Barry Sabol (2002), Consumer Trust, Value and Loyalty in Relational Exchanges, *Journal of Marketing*, vol.66, p 15-37 January 2002
- [4] Ekrem Cengiz, Hasan Ayyildiz and Biinyamin ER (2007) Effects of Image and Advertising Efficiency on Customer Loyalty and Antecedents of Loyalty: Turkish Banks Sample, *Banks and Bank Systems* , vol.2, Issue 1
- [5] Haemoon Oh (1999), Service quality, customer satisfaction and customer value: A holistic perspective, *International Journal of Hospitality Management*. 18, 67-82.
- [6] Janelle Barlow, Dianna Maul (2010) Emotional Value: Creating strong Bonds with your Customers, Berrett-Koehler.
- [7] Jagadish N.S and Atul P (2002), Evolving Relationship Marketing into a Discipline, *Journal of Relationship Marketing*, vol.1, p 1-94.
- [8] Kjell E. Gruner and Christian Homburg, (2000). Does customer interaction enhance new product success? *Journal of Business Research* 49, 1-14
- [9] Leonard .L.Berry (1996) Retailers with a Future Five benefits distinguish company that compete on value, *Marketing Management*, Spring , vol.5 , No.1, 38-46
- [10] Mahtab N, Abdullah M (2016) Marketing of Financial and Banking Products: An Example from Bangladesh Bank. *J Account Mark* 5: 159. Doi: 10 4172/2168-9601.1000159
- [11] Robert.B Woodruff (1997), Customer Value: The next source for Competitive Advantage, *Journal of the Academy of Marketing Science*, Vol.25, No.2, pages 139-153
- [12] Ronald L.Hess Jr., Shankar Ganesan and Noreen.M.Klein, (2003), Service Failure and Recovery: The Impact of Relationship Factors on Customer Satisfaction, *Journal of the Academy of Marketing Science*, volume31, No.2, pages 127-145.
- [13] Shun Yin Lam, Venkatesh Shankar, Krishna Erramilli and Bvsan Murthy (2004). Customer value, satisfaction, Loyalty and switching costs: An illustration from business to business. *Journal of the Academy of Marketing Science*, Vol 32, No.3, Pg 293-311.
- [14] Susan M. Keaveney and Kenneth A. Hunt (1992), Conceptualisation and Operationalisation of Retail Store Image: A case of Rival Middle-Level Theories, *Journal of the Academy of Marketing Science*, Vol.20, No2, pp 165-175

- [15] Tuli, Kapil; Kohli, Ajay, and Bharadwaj, Sundar G., (2007). Rethinking customer solutions: From product bundles to relational processes. *Journal of Marketing*. 71, (3), 1-17 Research collection Lee Kong Chian school of Business. ISSN: 0022-2429
- [16] Yonggui Wang, H. P. (2004). *An integrated framework for customer value and customer relationship Management Performance: a customer based perspective from China*. Emerald Group Publishing Limited. Vol 14. pp 169-182
- [17] Zeithaml, V.A., (1988) Consumer Perceptions of Price, Quality and Value: A means-end model and synthesis of evidence, *Journal of Marketing* 52, 2022
- [18] <https://searchsalesforce.techtarget.com/definition/personalization>.

The Impact of In-Service Training on Teaching Effectiveness of Faculties

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Abstract

Purpose - The Purpose of the present paper is to study the influence of in-service training on teaching effectiveness of faculties' at commerce colleges affiliated to Bangalore university.

Design/ Methodology/ approach – The descriptive research design was used and the simple random sampling method was adopted in selecting the 3 commerce college faculties affiliated to Bangalore university in the North Zone of Bangalore District

Findings – The hypothesis was tested and the results of regression revealed that there is only a slight impact of in-service training on teaching effectiveness.

Practical Implications - The Study revealed that in-service training is not the only factor that brings in teaching effectiveness. Therefore, there was only a mild correlation between both the variables

Key words: Bangalore North, Commerce, In-service Training, Teaching Effectiveness.

Paper Type: Empirical Research paper

I. Introduction

The Quality of education depends on the ability, dedication and hard work of the teacher. If a teacher fails to keep him in touch with the rapid scientific and educational developments then he would become inefficient and ineffective. It is a fact that the academic qualifications, knowledge of the subject matter, competence and skills of teaching and the commitment of the teacher have effective impact on the teaching learning process. "Many factors are responsible for shaping the quality teaching. These include ideological and socio-economic needs, existing structure of education system, and well-defined theories and practices of teaching and learning. Teacher education program, being an integral part of the education system, has greatly expanded and will expand further for catering to the fast emerging needs of the country. Teachers are a nation's great assets. The importance of teachers and the role they play in the educative process are central to basic education. Successful educational improvement is fundamentally linked to professional development. One of the most persistent problems facing education is that of improving the quality of teachers so as to produce well qualified, conscientious highly motivated, imaginative and committed teachers who would cope with the demands of the nation's educational system. The new millennium is filled with dramatic global transformation in technology, education, information, economy and social activities which pose immense challenges to the Commerce teachers. Teachers of Commerce need to articulate professional orientation on how Commerce Subjects could be appropriately taught if the goals of Commerce education must be realized to justify its introduction in the College curricula.

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1.1. Need for The Study: Learning to teach is a life-long pursuit and a teacher's education is a continuing education otherwise their ideas and methods became obsolete. Commerce is a subject that is constantly undergoing review in order to keep well-informed of the needs and demands of the society at large. Similarly, the commerce teachers need to get updated with current research reports on the various aspects of commerce education. Teachers have complex role and have more demands on them. Therefore they need new knowledge, skills and attitudes. It is also the belief of many educators that pre-service training of teachers is not sufficient to prepare teachers for life. It was been argued that only through the growth of in-service education that the gulf between advancing knowledge and practice can be bridged. It was on the basis of this that the National Policy on Education (2004) emphasized that in-service training shall be developed as an integral part of continuing teacher education and shall also take care of all inadequacies. The acceptance of such responsibility by the government is a right step to ensure effectiveness and quality teaching and learning.

Quality education depends on the quality of the teachers. In-service education ensures that teachers are kept up to date and adequately empowered to offer quality delivery. The pre-service training, might not perfectly prepare them for effective job performance. Therefore many reasonable teachers should seek the opportunity of in-service education as a means of further professional development.

2. Literature Review

Harris & Sass (2006) studied the implications of various types of education and training on the ability of teachers to encourage student achievement. They found that there is no evidence that either pre-service training or the scholastic aptitude of teachers influences their capability to increase student achievement. In the past, eight studies of teacher productivity in the U.S. have been conducted. Results of one study on elementary mathematics are about evenly split between positive and insignificant effects of teacher experience on student achievement. In contrast, all but one of the eight recent studies that separately analyze elementary reading find that student achievement is positively correlated with teacher experience.

Aaronson, et al. (2007) and Betts, et al. (2003) find no significant correlation between teacher experience and student achievement while **Clotfelter, et al (2007)** find strong positive effects. One difference in these studies is that Clotfelter et al utilize course-specific end-of-course exams while the other studies rely on more general achievement exams.

Dee (2004) and Nye, et al. (2004), recent research indicates either insignificant or in some cases even negative associations between possession of graduate degrees by a teacher and their students' achievement in either mathematics or other subjects. In contrast to experience and possession of advanced degrees, the pre-service undergraduate training of teachers has received much less attention in the recent literature.

3. Objectives of the Study

- To study the demographics of the faculty (members) in commerce colleges.
- To study the impact of in-service training on teaching effectiveness

4. Research Methodology

This study was designed to evaluate the effect of In-service education on Commerce teachers. A Structured questionnaire was given to 40 Commerce faculties of 3 Colleges in North Zone of Bangalore District using Random sampling method for the study. The

questionnaire was of Likert scale with 5 options were in 1=very useful, 2=useful, 3=somewhat useful, 4=not very useful and 5=not useful. A set of the questionnaire was administered to Commerce experts for validation. To determine the reliability, the instrument was pretested and the reliability of the instrument was estimated using Cronbach Alpha. The reliability co-efficient was found to be 0.916. All the 40 faculties sampled completed the questionnaires and the questionnaires were returned on the same day.

5. Analysis and Interpretations

Demographics of Faculties

This section of the study provides the demographic details in two parts. Table 1 represents the demographics of the faculties such as gender and Age. Table 2 shows the educational Qualification, teaching experience and in-service training attended by faculty.

Table1: Background information of sample teachers in the study by faculty, gender and age

Variables	Category	N	Percent
Faculty	Commerce	40	100
	Total	40	100
Gender	Male	12	30
	Female	28	70
	Total	40	100
Age	21-25	06	15
	26-30	14	35
	31-35	10	25
	36-40	03	7.5
	Above 40	07	17.5
	Total	40	100

Computed from primary data

Inferences

It can be represented from the table that the number of samples selected from each faculty is almost proportional with slight difference. That is, the percentages of sample teachers in Table 1 from Commerce teachers from three colleges which is 100% respectively. The information in the table also reveals that 30 per cent and 70 percent of the teachers were males and females respectively. Hence, the number of male teachers is fewer than that of female teachers. Therefore, this indicates that the great majority of the teachers in the sample areas of the study were females showing that the work environment was female dominated.

Regarding the age of the respondents, 15 per cent of the teachers were between 21 and 25 years and 35 per cent of the teachers were between 26 and 30 years. The rest of the teacher's 25per cent, 7.5 per cent and 17.5 per cent were between 31 and 35years, 36 and 40 years and above 40 years respectively. This shows that the vast majority of teachers were young.

Profile of faculty

Table 2: Background Information of sample teachers in the study by educational level, teaching experience and workload

Variables	Category	N	Percent (%)
Educational Level	PG	32	80
	MPhil	02	5
	PhD	06	15
	Total	40	100
Teaching Experience in Years	<2 years	12	30
	2-5 years	14	35
	5-10 years	09	22.5
	>10years	05	12.5
	Total	40	100
In-service training attended in a year	None	1	2.5
	1-2 times	36	90.0
	3-4 times	3	7.5
	Total	40	100

Computed from primary data

Inferences

With regard to Educational qualification of the respondents, 80per cent of the faculties were Post Graduates. Regarding this the UGC (University grant commission) states that the faculties need to possess post-graduation and NET in their respective disciplines for them to be an Assistant professor. As to the teaching experience of the respondents, the majority of the teachers 35 per cent had teaching experience of more than 2 to5 years, and 30 per cent and 22.5 per cent of them had teaching experience between less than two years and in between five to ten years. This, therefore, indicates that the minority of the teachers have less teaching experience. With regard to in- service training attended it is noticed that 90 percent of the faculties attend workshops and seminars 1-2 times in a year.

Topics covered during training

Table 3: Teacher's perceptions on the usefulness of topics covered during training, workshops etc.

SL NO	Items on topics covered during training programme	1=Very Useful	2=useful	3=somewhat useful	4=Not very useful	5=Not useful	SD	Mean
1	Subject content area topics	15 37.55%	24 60%	1 38%	-	-	.541	1.63
2	Topics based on pedagogy	8 20%	23 57.5%	9 22.5%	-	-	.677	2.03
3	Topics on classroom management	7 17.5%	24 60%	8 20%	1 2.5%	-	.712	2.08
4	Topics on teaching/learning principles	9 22.5%	24 60%	6 15%	1 2.5%	-	.716	1.97

Computed from primary data

Inference

It is observed that more than 90 percent of the faculties' perception on the usefulness of topics covered during training, workshop etc. is found very useful. It is also noted that faculties should not be provided only in-service training but also need to be given access to attend different seminars and workshop conducted in various other colleges too.

Teachers' perception on benefits of the training workshops on their teaching effectiveness (to examine the impact of workshops on teacher's skill development)

Table 4: Benefits of training

Sl No	Items on benefits of in-service training	1=Very Useful	2=useful	3=somewhat useful	4=Not very useful	5=Not useful	SD	Mean
1	In-service training helped to increase teachers knowledge of teaching methods(ex: Demonstration method, Chalk and talk)	16 40%	23 57.5%	-	1 2.5%	-	.716	1.97
2	In-service training helped to improve teachers knowledge of how to teach difficult topics in their subject areas using representations, models and diagrams	11 27.5%	26 65%	3 7.5%	-	-	.628	1.64
3	In-service training helped teachers improve in their teaching effectiveness in terms of lesson preparation	8 20%	22 55%	9 22.5%	-	1 2.5%	.821	2.10
4	In-service training has helped to deepen my content knowledge	9 22.5%	23 53.5%	7 17.5%	1 2.5%	-	.735	1.75
5	In-service training can help to improve	16 40%	19 47.5%	4 10%	-	1 2.5%	.842	1.77

	knowledge of how to use theories of teaching and learning							
6	Teachers lesson presentation improved due to in-service training exposure for improved students' learning	8 20%	27 67.5%	3 7.5%	1 2.5%	1 2.5%	.805	2.00
7	In-service training can help teachers develop how to reflect critically on their teaching practices	13 32.5%	19 47.5%	6 15%	2 5%	-	.0850	1.92
8	Through in-service training, teachers can learn best practices in assessing and monitoring students' performance	10 25%	20 50%	7 17.5%	3 7.5%		.870	2.08
9	In-service training can help to improve knowledge of how to maintain positive teacher-student interpersonal relationship during instruction	15 37.5%	19 47.5%	2 5%	4 10%	-	.923	1.87

Computed from primary data

Inference

From the above table it has been observed that more than 90 percent of faculty's opinion is good about the benefits received from in-service training. But it is also found that in-service training is not the only factor that influence or has an impact on teaching effectiveness. There are various other factors that bring an impact such as pay packages, incentives, teaching methodology, taking part in research activities etc.

Impact of in-service training on teaching effectiveness

This section of the study examines whether in-service training leads to effective teaching. The variables used are "In-service training" as independent variable and "effective

teaching” as dependent variable. A linear regression model is formulated to test the impact or casual effect relationship between the two variables. The following hypothesis is formulated and put to test.

H₀: Teaching Effectiveness has no significant impact on In-service Training

Table 5 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.271 ^a	.073	.048	1.93073

Source: Computed from Primary Data

Table 6 : ANOVA^a

Model	Sum Squares	df	Mean Square	F	Sig.
Regression	10.618	1	10.618	2.848	.100 ^b
1 Residual	134.198	36	3.728		
Total	144.816	37			

Source: Computed from Primary Data

Table 7 : Co-efficient

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% confidence interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	23.853	1.358		17.562	.000	21.099	26.608
In Service Training	-.089	.053	-.271	-1.688	.100	-.197	.018

Source: Computed from Primary Data

Inference

The model summary table reveals R value of 0.271 (Table 5) indicating a mild correlation between the effective teaching (dependent) variable and in-service training (independent) variables. The R square value of 0.073 shows a very slight 7 percent of the variance (amount of change) in the dependent variable as is explained by the independent variable.

The ANOVA table indicates that the regression equation doesn't fit the data which predicts the dependent variable. The p-value is 0.100 which is more than 0.05 thereby accepting the null hypothesis. This shows that regression model is statistically not significant.

The Coefficient table predicts that in-service training doesn't have a substantial influence in effective teaching of faculties. Contribution of in-service training to effective teaching is found statistically insignificant in the model since the p-value is 0.100, which is more than 0.05. It is inferred that in-service training is not only the factor that leads to effective teaching. Hence, the null hypothesis that teaching effectiveness has no significant impact on in-service training is accepted.

6. Conclusion

It is to be noted that student learning is a product of the interaction between students and teachers, and both parties contribute to this interaction. Similarly teachers who have a positive attitude about themselves and their profession are more effective to increase the quality of student learning. The more the teachers regard their opportunity to implement effective teaching practices the better their students will perform. However well-educated and trained the teachers are rendered less effective if colleges lack the basic facilities, equipment and materials necessary for teaching and learning

7. Future Scope for Research

1. The study can be conducted taking more colleges in Bangalore District.
2. Advanced statistical tools can be employed for the study.

References

- [1] Aaronson, D., Lisa, B., & William, S. Teachers and student achievement in the Chicago public high schools. *Journal of Labor Economics*. (2007). 25: 95–135.
- [2] Asu.edu. Professional development. (2004) from www.asu.edu
- [3] Bauer, S. C. (2004) .Should Achievement Tests be Used to Judge School quality? University of New Orleans. Retrieved on Oct 05, 2018 from <http://www.asu.edu/apaa.html>
- [4] Cochran-Smith, M. (2002). Constructing outcomes in teacher education: Policy, Practice and Pitfalls. Boston College. Retrieved on October 9, 2018 from <http://www.asu.edu/apaa.html>
- [5] Clotfelter, C. T., Helen, F. L., & Jacob, L. V. (2006). Teacher-student matching and the assessment of teacher effectiveness. *Journal of Human Resources* 41(4): 778-820.
- [6] Dee, T. S. (2004). Teachers, race and student achievement in a randomized experiment. *Review of Economics and Statistics*, 86(1):195-210.

Leadership Behavior of Sales Managers and Performance Of Salesmen – With Reference To Agri Input Organizations

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Abstract

Commercialization in the agriculture sector has increased at rapid speed in recent past. Increased entrants have increased the quantity and quality of agri inputs in the Indian agricultural market which has resulted in increased competition. The behavior of superiors may be different in the same work situation also. These behaviors influence the motivation and performance of their subordinates i.e. salesmen. Immediate superiors to salesmen working in agri input organizations are sales managers. To study the relationship between sales managers leadership behavior and its impact on work performance of salesmen working in agri input organizations it is required to understand the leadership behavior and its relationship with performance of subordinates. Initiating Structure and Consideration have been found as a basic tool in developing various theories of leadership, leadership behaviors, and leadership styles. Initiating Structure and Consideration are considered for this study.

Introduction

The agricultural situation in India has undergone a rapid change in last three decades. Investment in the agriculture sector has risen in public and private sector (Acharya & Agarwal, 2011). New technology and yield increasing farm practices are getting adopted by farmers. The efforts by various organizations are already underway to assure agricultural input supply to farmers in the right time at right place. Such organizations engaged in manufacturing, marketing of Seeds, Fertilizers, Pesticides, Micronutrients, Farm equipment, etc. required for farming are called as Agri input Organizations.

In Agri input organization' Field service Associates are the salesmen who are in direct contact with the customers i.e. retailers and consumers i.e. farmers. Salesmen of Agri input organization have to work in the rural area; they have to meet many farmers in their fields. Salesmen commonly are called Field Service Associates or Field Assistants who recommend the product by analyzing the crop. They have to carry out the function of creation of demand and to visit various small retailers for collecting orders and keeping the record of merchandise provided to them.

These Field Service Associates serve the farmers by sharing technological knowledge. It is tough to convince the farmer (who is the customer of agri input organizations) to adopt new technology, new product, new farming technique. Hence there is difficulty in creating demand for the particular product, as farmers purchasing capacity is very limited.

Functions of salesmen of Agri Input Organizations are as follow

Generate the awareness about the product by contacting the farmers and giving information about the product/s.

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- Suggest a best possible solution to the farmers' technical queries.
- *Arrange Farmer meetings*
- *Arrange field visits.*
- *Arranging or demonstrating of particular Agri input product use.*
- To conduct result demonstration for conveying product benefits

To get good business, the salesman has to keep technical as well as commercial knowledge; technical expertise for the convincing customer and business information for getting more business from retailers. Salesmen of agri input organizations work in extreme conditions as they have to travel more in the rural area daily and working hours are also stretched as farmers meeting has to be scheduled in the evening time. For field visit salesman has to reach the area early in the morning as farmers go to the farms in the morning. In such conditions, it is necessary to motivate the salesman for the work he does. And it becomes the responsibility of the sales manager to keep his subordinates highly motivated as they are the ones with whom salespersons interact daily and work under their supervision.

Commercialization in the agriculture sector has increased at rapid speed in recent past. Various Multi National Companies are entering in the Indian Market with new technology are inputs. Increasing sources of irrigation are resulting in an increase of agricultural land and agri inputs requirement. (Acharya & N.L.Agarwal, Agricultural Marketing In India, 2011) . Increased entrants have increased the quantity and quality of agri inputs in the Indian agricultural market which has resulted in increased competition.

In increased competition, it becomes necessary to increase promotion to sustain and grow in the market. Due to demographic characteristics as the low education level of rural people which forms the majority part of agri input customers that is farmers, it becomes necessary to communicate with client personally and to inform him about product features and performance. Personal selling is most valuable promotion tool in the Agri Input market.

As personal selling plays a big role in agri input marketing responsibility of the sales person increases as they are in direct contact with the farmers. To create demand from field salesmen required to work hard. So it becomes necessary to study the perceptions of Agri input organization salesmen towards their sales manager's leadership behavior and its relation to their work performance.

Hence the objectives for the study derived are as under

- To study the leadership behavior of sales managers working in Agri input organization.
- To study the perceptions of salesmen working in Agri input organizations towards leadership behavior of their sales managers.
- To study the relationship between leadership behavior of sales managers and performance of salesmen working in Agri input organization.

Leadership

It is necessary to understand that for effective management influential leadership is required. Leadership behavior affects the subordinates motivation and ultimately performance. Managers in the organization are leaders are, and their subordinates are their followers. Follower's perceptions and energy to perform is considerably depends on leader's behavior. Leaders influence the group of subordinates and make them work in common direction to achieve organizational goals.

Leadership is one of the most interesting topics for research. Many researchers have done research on this subject. In the organizations to achieve organizational goals superiors direct, support, motivate, award or punish to their subordinates. These superiors are managers, and they are getting work done from their subordinates. Leadership behavior of managers depends on many factors situational factors, Manager's traits, subordinates ability, subordinates perceptions, organizational goal, task structure, work environment and so on.

So it becomes necessary to study that how the leaders control their subordinates and get the work done. Organizations require leaders for team's success. Many management researchers examined the leadership behaviors and defined leadership.

Immediate superiors to salesmen working in Agri input organizations are sales managers.

Leadership Behavior:

Generally ability of an individual or organization to "lead" or guide other individuals, teams, or entire organizations is known as leadership. For behavioral theorists, a leader behavior is the best predictor of his leadership influences and as a result, is the best determinant of his or her leadership success.

Various researches have shown that perceptions of subordinates regarding leader influence their motivation. Subordinates perceptions are getting derived on behavior of leaders. Hence it becomes necessary to study various leadership behaviors.

Literature Review

From the review of literature done by Bass & Stogdill and Fleishman et al.; Initiating Structure and Consideration have been found as a basic tool in developing various theories of leadership, leadership behaviors, and leadership styles.

Initiating Structure and Consideration (IS&C)

Bass and Stogdill compared the various leadership theories with initiating structure (IS) and Consideration (C) in their "Handbook of Leadership: Theory, Research, and Managerial Applications." In this handbook, they mentioned about the similarity between democratic and autocratic styles of leadership to consideration and initiating structure leadership behavior respectively. As in democratic style and consideration style leadership, leaders delegate the power according to tasks to subordinates also; while in autocratic and initiating structure leaders retain maximum power with them (Bass 1990). In transactional leadership style managers stresses on basic management principles as planning, organizing and controlling. In this style of leadership, leaders motivate and direct their subordinates and appeal their self-interest. In this kind of leadership, style leaders set contingent rewards in return of subordinate's efforts. It is task related style of leadership showing similarity to Initiating Structure leadership behavior conceptually (Bono & Anderson, 2005)

In "Taxonomic effects in the description of leadership behavior: A synthesis and cognitive interpretation," Fleishman, E. A and others done an analysis of literature available on leadership. It was concluded by them that leaderships styles are majorly derived from two aspects as 1) facilitation to subordinates and 2) Objective task accomplishment, Initiating structure (IS) and Consideration (C).It was mentioned in the study about the similarity amongst the fundamentals of leadership style classification and IS&C.

From the review of literature done by Bass & Stogdill and Fleishman et al.; Initiating Structure and Consideration have been found as the primary tool in developing various theories of leadership, leadership behaviors, and leadership styles.

Considering the comprehensiveness of the Initiating Structure and Consideration Leadership behavior theories, these styles have been envisaged for the study.

Performance

Performance is an individual's successful criteria in work. In 2002, Kazemi and Abbas proposed that performance usually calculates person output rate (e.g., sales or production) or evaluates the success rate compared to expectations of the organization. The performance of an individual is defined as a result of the actions set to achieve that goal based on a particular standard. Performance may include actions or behavior of all non-observable mental processing, e.g., problem-solving, decision-making, program planning, reasoning (Bailey, Robert W 2003). The performance is nothing but result achieved, imagined in mind. In general, plan to staff performance evaluation, mean of performance is the performance results and the process is working, i.e. Assess how doing work and achievements by the process are both considered as performance (Soltani, Iraj 2003).

Individual performance is a core concept within work and organizational psychology.

In clarifying and extending the performance concept (Campbell, 1990). Moreover, advances have been made in specifying major predictors and processes associated with individual performance. With the ongoing changes that we are witnessing within organizations today, the performance concepts and performance requirements are undergoing changes as well (Ilgen & Pulakos, 1999).

Initiating Structure & Consideration (IS&C) and Performance

The extent, to which a leader defines leader and group member roles, initiates actions, organizes group activities, and defines how tasks are to be accomplished by the group is considered under the Initiating structure.

Initiating Structure and Consideration (IS&C) are the core fundamentals of leadership literature. The relationship was observed in IS & C and subordinates' satisfaction, motivation, leader effectiveness, leader job performance, and group performance (Judge et al., 2004). Judge proposed through meta-analysis that IS & C shows a relationship with satisfaction, motivation, leader effectiveness organization performance (Judge et al., 2004). Keller (2006) found the positive relationship between Initiating structure and performance.

Formulation of Hypotheses of the Study

On the basis of literature review, depth interviews of experienced sales managers working in the agri-input organizations following hypotheses were framed for the study.

H1: There is significant relationship between sales manager's Initiation structure and salesmen performance.

H2: There is significant relationship between sales manager's Consideration and salesmen performance.

This study is proposing that leadership behavior of sales managers influence salesmen performance.

Research Design

It was a descriptive study in which data was collected with structure questionnaire. Personal Interview method was used to administer the questionnaires.

Questionnaire structure

Primary data was collected with the help of structure questionnaire. To describe the leadership behavior; Leadership Behavior Description Questionnaire (LBDQ) developed by staff of Ohio State University was used. It was customized according to need of the

current study. Items related to description of initiating structure and Consideration leadership behavior were considered from the LBDQ.

Self rated performance questionnaire was prepared Five point scale is used for every question. Appropriate marks 1 to 5 was assigned to each question generate quantifiable data to measure leadership behavior and its relationship with motivation as well as performance.

Information related to demographic characteristics as age, gender and educational level of salesmen was also collected through questionnaire.

Sample Size= $(z\sigma/e)^2$

Where z= Level of significance, σ = standard deviation, e= permissible error.

Z= 1.96 (5% level of significance)

S = $5-1/6 = 4/6 = 0.67$

E = 0.10 (10% error of margin)

Sample Size = $(1.96 \times 0.67/0.10)^2 = 169$

Sampling Method

Sales managers working for agri input organization were contacted through dealers of various agri input organizations. After contacting them contact information of salesmen was collected. Non probability convenience sampling method was used to select samples for the study. In which salesmen who were accessible and ready to provide information considered to collect the responses.

Data Collection

As salesmen are on field most of the time so they have limited access to internet and computer so considering the work of salesmen it was decided to contact them personally as the mail Questionnaire method would have result in low and late responses. Most of the salesmen were contacted at dealer's office in group as many of the organizations do not have set up of office. Generally sales managers and salesmen meet at the dealers /distributors place. Questionnaire was administered in the sales officer and salesmen meeting. At the time of administering the questionnaire sales managers were requested to go out from the place of meeting. Personal Interview method was hectic due to more travelling and time required for interview. So wherever possible salesmen were contacted on phone and responses were recorded.

Data Analysis

Descriptive statistics was used to analyze the data. Regression was the tool by which association of the various relationships were tested.

Hypothesis Testing

There is significant relationship between sales manager's Initiation structure and salesmen performance.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.578 ^a	.334	.330	.46790

a. Predictors: (Constant), Initiating Structure

Table 1: Results of regression analysis salesmen performance as a Dependent variable and Initiating Structure as independent variable

The above table tells about model summary. R-square tells the “goodness of fit” of the model. R-square for this model is 0.330, which means that the independent variable, Initiating Structure is explaining 33.0% of the change in Performance which is the dependent variable for this study.

There is a significant relationship between sales manager’s Consideration and salesmen performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.502 ^a	.252	.247	.54707

a. Predictors: (Constant), Consideration

Table 2: Model Summary of regression analysis salesmen performance as a Dependent variable and Consideration as independent variable

The above table tells about model summary. R-square tells the “goodness of fit” of the model. R-square for this model is 0.247, which means that the independent variable, Consideration is explaining 24.7% of the change in Performance which is the dependent variable for this study.

Finding and Conclusion

Overall H1 and H2 testing show that there is a significant relationship between IS & C (Initiating Structure and Consideration leadership behavior) and performance of their subordinates. Considering this study both the styles of leadership behavior are showing low to moderate level of significant relationship with performance.

It can be concluded that both kind of leadership (Initiating Structure and Consideration) behavior of sales managers of agri-input organization affects the performance of their salesmen. When the sales manager will plan, organize and execute the tasks then it will enhance the performance of the salesmen but at the same time; he should be considerate enough to solve the personal hurdles of subordinates. That means a balance between both the types of leadership behavior Initiating Structure and Consideration leadership behavior is useful to enhance the performance.

Limitations of the study

The study was relationship study between Leadership Behavior and performance. Mediation research can be done which will establish the relation between leadership and performance mediated through motivation as huge literature shows that motivation is important factor which affects performance.

References

Ali A.Al-Kazemi, Abbas J. Ali, (2002) "Managerial problems in Kuwait", Journal of Management Development, Vol. 21 Iss: 5, pp.366 – 375.
Altmann, J.; Hausfater, G.; Altmann, S.A. Demography of Amboseli baboons 1963- 1983. American Journal Of Prima- Tology 8:113-125, 1985.
Anderson E, Oliver RL (1987). Perspectives on behavior-based versus outcome-based sales force Control Systems, J. Mark. 51: 76-88
Anka L. M. Anka. (1988). Corporate Objectives and Self Development: The Specialists International. Journal of Institute of Management Specialist, 3 (5), pp.38-47

Avolio BJ, Bass BM, Jung DI (1999). Re-examining the components of transformational and transactional leadership using the Multifactor Leadership Questionnaire. *J. Occup. Organ. Psychol.* 72 (4), 441-462

Awamleh RA, Gardner WL, (1999). Perceptions of leader charisma and effectiveness: the effects of vision content, delivery, and organizational performance. *Leadership. Q.* 10(3), 345-373

Awamleh, R. A., and W. L. Gardner, (1999). 'Perceptions of Leader Charisma and Effectiveness: the Effects of Vision Content, Delivery, and Organizational Performance'. *Leadership Quarterly*, 10.3 pp 345-373

Bass BM (1997), "Does the transactional/ transformational leadership paradigm transcend organization and national boundaries?" *Ame. Psychol.* 52: 130-139

Bass BM, Avolio BJ (1993). "Transformational leadership: A response to critiques: New York, NY: Free Press

Bass BM, Avolio BJ, Jung DI, Berson Y (2003). "Predicting unit performance by assessing transformational and transactional leadership, *J*

Bass, B. M. (1981). *Stodgill's handbook of leadership: A survey of theory and research.* New York: Free Press.

Bass, B. M. (1990). *Bass & Stogdill's handbook of leadership: theory, research, and managerial applications.* New York: The Free Press.

Batten, J. D. (1989). *Tough-minded leadership.* New York: AMACOM.

Blake RR, Mouton JS (1964). *The managerial grid.* Houston, TX: Gulf. Castleberry SB, Tanner JF Jr (1986). *The manager salesperson relationship: An exploratory examination of the vertical-dyad image model, J. Pers. Selling and Sales Management.* 6: 29-37.

Blake, R.R. & Mouton, J.S. (1964). *The managerial grid.* Houston: Gulf Publishing.

Bono, J. E., & Anderson, M. H. (2005). The advice and influence networks of transformational leaders. *Journal of Applied Psychology*, 90, 1306-1314.

Campbell, J. P. (1990). Modeling the performance prediction problem in industrial and organizational psychology. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology (Vol. 1, pp. 687-732).* Palo Alto: Consulting Psychologists Press.

Carlyle, T. (1902). *The Hero as King.* In J. T. Wren (Ed.), *The Leader's Companion* (pp. 53-54). New York: The Free Press. Google Scholar

Carlyle, Thomas. *On Heroes, Hero-Worship and the Heroic in History,* Fredrick A. Stokes & Brother, New York, 1888. p. 2.

Chemers, M.M. (1984). *Contemporary Leadership Theory.* In J. T. Wren (Ed.), *The Leader's Companion* (pp. 83-99). New York: The Free Press. Google Scholar

Chowdhury M (2006). "Pygmalion in Sales: The Influence of Supervisors' Expectations on Salespersons' Self-Expectations and their Work Evaluations", *J. Bus. Public Aff.* 1(1): 1-12.

Cribbin, J.J. (1981). *Leadership: strategies for organizational effectiveness.* New York: AMACOM.

Donnelly, J. H., Ivancevich, J. M. & Gibson, J. L. (1985). *Organizations: behavior, structure, processes* 5th ed. Plano, Texas: Business Publications Inc.

Feldman, J.M., Reitz, H.J., & Hilterman, R.J. (1976). Alternatives to optimization in expectancy theory. *Journal of Applied Psychology*, 61, 712-720.

Fleishman, E. A., Mumford, M. D., Zaccaro, S. J., Levin, K. Y., Korokin, A. L., & Hein, M. (1991). Taxonomic effects in the description of leadership behavior: A synthesis and cognitive interpretation. *Leadership Quarterly*, 2, 245-287.

Greenleaf, R.K. (1970). *The servant as leader*. Indianapolis: The Robert Greenleaf Center. Google Scholar

Greenleaf, R.K. (1977). *Servant leadership: A journey into the nature of legitimate power and greatness*. New York: Paulist Press. Google Scholar

Hambleton, R. K. & Gumpert, R. (1982). The Validity of Hersey and Blanchard's Theory of Leader Effectiveness. *Group and Organization Studies*, 7, 2, 225-242

Hemphill, J. K., & Coons, A. E. (1957). Development of the leader behavior description questionnaire. In R. M. Stodgill and A. E. Coons (Eds.), *Leader behavior: Its description and measurement*. Columbus, Ohio: Bureau of Business Research, Ohio State University, pp. 6-38.

Hersey, P. & Blanchard, K.H. (1995). *Situational Leadership*. In J. T. Wren (Ed.), *The Leader's Companion* (pp. 207-211). New York: The Free Press.

Hersey, P., & Blanchard, K. (1988). *Management of organizational behavior*. Englewood Cliffs, New Jersey: Prentice Hall.

Huseman, R.C., Hatfield, J.D. & Miles, E.W. (1987). A New Perspective on Equity Theory: The Equity Sensitivity Construct. *The Academy of Management Review*, 12, pp.222-234

Judge, T. A., & Piccolo, R. F. (2004). Transformational and transactional leadership: A meta-analytic test of their relative validity. *Journal of Applied Psychology*, 89, 755-768.

Kaplan, S.E., P.M.J. Reekers and K.D. Reynolds, 1986. An application of attribution and equity theories to tax evasion behavior. *Journal of Economic Psychology* 7. 461-476.

Katz, D., & Kahn, R. L. (1978). *Social psychology of organizations*, 2nd ed. New York: John Wiley.

Keller, R. T. (2006). Transformational leadership, initiating structure, and substitutes for leadership: a longitudinal study of research and development project team performance. *Journal of Applied Psychology*, 91, 202-210.

Kohli A (1985). Some unexplored Supervisory Behaviors and their influence on salespeople's role clarity, specific self-esteem, job satisfaction and motivation, *J. Mark. Res.* 22: 424-433

Konopaske, R., Werner, S., and Neupert, K.E. (2002), "Entry Mode Strategy and Performance, the Role of FDI Staffing," *Journal of Business Research*, 55, pp.759-770.

Kouzes, J. M., & Posner, B. Z. (1995). *The leadership challenge*. San Francisco: Jossey-Bass.

Luthans Fred, *Organizational Behavior*, Eighth Edition, McGraw Hill International Edition, Boston, USA, 1998, p. 176.

McClelland, D. C. (1980). Motive dispositions: The merits of operant and respondent measures. In L. Wheeler (Ed.), *Review of personality and social psychology*, (Vol. 1, pp. 53-81). Beverly Hills, CA: Sage

McGregor, D. (1960). *The human side of organization*. New York: McGraw-Hill. Google Scholar

Northouse, P. G, 2007, *Leadership, Theory and Practice*, Fourth edition, Thousand Oaks, Ca.: Sage Publications.

Perry, Janies L., and Porter, Lyman W. 1982 "Factors Affecting the Context for Motivation in the Public Sector." *Academy of Management Review* 7 (Jan.):89-98.

Petri, H.L. (1996). *Motivation: Theory, research and applications* (4th ed.). New York: Brooks / Cole Publishing Company.

Pierce, J., & Newstrom, J. (2003). *Leaders and the leadership process*. Boston, MA: McGraw-Hill.

Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H., & Fetter, R. (1990). Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors. *Leadership Quarterly*, 1(2), 107-142.

Pritchard, R. D., Harrell, M. M., DiazGranados, D., & Guzman, M. J. (2008). The Productivity Measurement and Enhancement System: A meta-analysis. *Journal of Applied Psychology*, 93, 540-567.

Robbins, S. 1993. *Organizational Behaviour: Concepts, Controversies, and Applications* (6th

Robbins, S. 1994. *Essential of Organizational Behavior*, Prentice-Hall International, Inc. London, UK.P.127

Robbins, S. P. and Coulter, M. (2007) *Management* (9th ed.).London: Prentice-Hall

Schriesheim CA, House R, Kerr S (1976). *Leader Initiating Structure: A*

Schultz, D. & Schultz, S.E. (1998). *Psychology and work today: An introduction to industrial and organizational psychology* (7th ed.). New Jersey: Prentice Hall.

Silver, D. A. (1983). *The Entrepreneurial Life: How To Go For It And Get It*. New York: John Wiley & Sons.

Stogdill RM (1974). *Handbook of leadership: A survey of theory and research*. New York: Free Press

Stogdill RM (1974). *Handbook of leadership: A survey of theory and research*. New York: Free Press

Stogdill, R. M. (1974). *Handbook of leadership: A survey of the literature*. New York: Free Press.

Stogdill, R., Bass, B., "Stogdill's Handbook of Leadership: a survey of theory and research", Free Press, (1981).

Stogdill, R.M. (1974). *Handbook of leadership*. New York: The Free Press.

Tyagi PK (1985). Relative Importance of Key Job Dimensions and Leadership Behaviors In Motivating Salesperson work performance, *J. Mark.* 48: 76-86.

Vroom, V.H. (1964). "Work and Motivation." New York: Wiley.

Weber, Max (1947) *The Theory of Social and Economic Organization*. Translated by A. M. Henderson & Talcott Parsons, The Free Press.

Yukl, G. *Leadership in Organizations*, 4th edition, Prentice-Hall, Englewood Cliffs, New Jersey, 1998.

Zalenik, A. (1992). Managers and leaders: are they different? *Harvard Business Review*. March/April, p 126.

Work Stress among Private Transport Employees in Thiruchirappalli District

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Introduction

Service sectors role are different from Industrial products, the consumer could be satisfy with their durable and non durable products. If the durable and no durable products are not satisfied the customers may switch over to another company. Employees may not face the customers; the products only reach the customers, the back bone of the company use to face the products delivery and etc. But the service sector the employees should face the customers directly, human being are have sentiments, love, affection and likes and dislikes, in this regard the management expectation may not be cent percent possible while satisfy their customers through their service. So the employees are in need of motivation, training and counseling to satisfy the end customers.

Transportation is important to move one place to another place to fulfill the public needs and wants. This system are in need of 365 days in the year, this service providing by the government sector and private sector, the train facility provide and maintain by the government only, but the road and air service given to private to fulfill the requirement. The private bus service provide condition bus to serve better, they have drivers and conductors to run their bus. They are in service but full day they are in running, so the drivers and conducts are in this service and they are meeting the passengers. Passengers are different in nature, so that they have more job stress.

The running employees have more stress than other service sectors employees. The drivers and conductors are having more stress while handling the passengers. The night time runnings are also hectic to them. This study taken the researcher to study the job stress and factors influence the job stress of the employees. They have lot of work stress from the passenger's side and owner side.

Transport in Tamil Nadu

Transport linkages play an important role in the development of the state. The investment in road transport generates more employment and improves the standard of living. The facility helps to get foreign investment in India. The average growth rate of 9.70 % per annum is generates through road transport. Importance of Stress in general and work-stress in specific can be judged from the fact that behavioral scientists, medical scientists, management experts have covered the research on stress and its impact on individual employees, which include behavioral, emotional, mental and physical impacts on human beings

Statement of the Problem

Present study is concentrated on the working condition and work stress of the employees. Employees stress is growing concern for organizations today. The significance of the study is to analyze the measure the level and causes of Stress among the employees of private transport employees in Trichy District. Work stress problem pose risks to workers' well

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being as well as to organizational performance. Hence, the stress is the universal phenomena and property of modern human beings irrespective of their occupation. Today's work environment demands more and more, therefore a certain level of stress is unavoidable and up to an acceptable level, stress can serve as a stimulus to enhance performance and productivity. Workplace stress is demands, or not being able to cope with the demands of a job. This could be triggered by multiple factors including inadequate staff training, a mismatch between staff skills and the demands of a role, or even unachievable demands or expectations being set upon an employee in relation to their role. Poor relationships and negative behaviour within the workplace can be one of the most distressing contributors to workplace stress and is something we will cover in greater depth in the second part of this miniseries. Factors triggering stress caused by change include a lack of timely information and reasoning, lack of opportunities for employees to influence change proposals, and a lack of support during any changes.

Objectives of the Study

- ✓ To identify and analysis the factors influencing work stress among the private transport employees in Tiruchirappalli District.
- ✓ To analysis of work stresses on the transport employees' satisfactions in the study area.
- ✓ To offer suitable suggestions based on the findings of the study.

Sampling techniques

The researcher adopted convenient sampling method to select one hundred and seventy five running employees. It includes both drivers and conductors.

Socio economic profile of the sample running employees

Table 1: The researcher taken 175 samples for this study, taken drivers and conductors

Variable		Sample (Per.)	Variable		Sample (Per.)
Age group	Up to 30 years	48 (27.43%)	Status	Married	134 (76.57%)
	31 years to 45 years	73 (41.71%)		Single	41 (23.43%)
	Above 45 years	54 (30.86%)	Family type	Joint	87 (49.71%)
Work	Drivers	62 (35.43%)		Nuclear	88 (50.29%)
	Conductors	113 (64.57%)	Family members	Up to 4 members	96 (54.86%)
Family monthly income	Up to Rs. 30,000	94 (53.71%)		Above 4 members	79 (45.14%)
	Rs. 30,001 to Rs. 45,000	38 (21.72%)	Years of experience	Up to 4 years	68 (38.86%)
	Above Rs. 45,000	43 (24.57%)		Above 4 years	107 (61.14%)

Forty eight (27.43%) sample running employees are come under the age group of up to 30 years. Seventy three (41.71%) sample running employees are come under the age group of 31 years to 45 years and the remaining fifty four (30.86%) sample running employees are come under the age group of above 45 years.

Sixty two (35.43%) sample running employees are drivers and the remaining one hundred and thirteen (64.57%) sample running employees are conductors.

Ninety four (53.71%) sample running employees' family income is upto Rs. 30,000. Thirty eight (21.72%) sample running employees' family income is between Rs. 30,001 and Rs. 45,000 and the remaining forty three (24.57%) sample running employees' family income is above Rs. 45,000.

One hundred and thirty four (76.57%) sample running employees' are married and the remaining forty one (23.43%) sample running employees' are single.

Eighty seven (49.71%) sample running employees' are joint family and the remaining eighty eight (50.29%) sample running employees' are nuclear family.

Ninety six (54.86%) sample running employees' family members are up to 4 and the remaining seventy nine (45.14%) sample running employees' family members are above 4 members.

Sixty eight (38.86%) sample running employees' are having less than 4 years of experience in this field and the remaining one hundred and seven (61.14%) sample running employees' are having above 4 experience in this field.

Table 2: Job Stress (frustrated) of running sample employees

Frustrated	Number of sample running employees	Percentage
Always	81	46.28
Sometime	54	30.86
Very often	40	22.86
	175	100

Eighty one (46.28%) sample running employees are frustrated always. Fifty four (30.86%) sample running employees are frustrated sometimes and the remaining forty (22.86%) sample running employees are frustrated very often.

Table 3: Factors influencing work stress

Factors	Number of sample running employees	Percentage
Job Security	42	24.00
Peak running times	12	6.87
Passengers wanting change	21	12.00
Poor treatment by passengers	11	6.28
Sleeping problems	22	12.57
Long working hours	17	9.71
No recognition	16	9.14
Learning the routes	11	6.29
Conflict and quarrels	23	13.14
Total	175	100

The running employees are frustrated always or sometimes and very often the same time the researcher got the factors influencing the factors the same time more than one factors may influence the job stress. But the above table shows which factors highly influence the running employees to frustrate.

Forty two (24.00%) running employees are suffering job security. Twelve (6.87%) running employees are suffering peak running times. Twenty one (12.00%) running employees are

suffering passengers wanting change. Eleven (6.28%) running employees are suffering of poor treatment by passengers. Twenty two (12.57%) running employees are suffering of long working hours. Sixteen (9.14%) running employees are suffering of recognition. Eleven (6.29%) running employees are suffering of learning the routes and the remaining twenty three (13.14%) running employees are suffering of conflict and quarrels. Majority of the running employees felt that no job security.

Finding and Results

1. Majority (seventy three) of the sample running employees are come under the age group of 31 years to 45 years including conductors and drivers.
2. Majority (one hundred and thirteen) of the sample running employees are conductors.
3. Majority (ninety four) of the sample running employees' monthly family income is up to Rs. 30,000.
4. Majority (one hundred and thirty four) of the sample running employees are married.
5. Majority (eighty eight) of the sample running employees are nuclear family members.
6. Majority (Ninety six) of the sample running employees family members are up to 4 members.
7. Majority (one hundred and seven) of the sample running employees are having above 4 years of working experience.
8. Eighty one (46.28%) sample running employees are frustrated always. Fifty four (30.86%) sample running employees are frustrated sometimes and the remaining forty (22.86%) sample running employees are frustrated very often.
9. Forty two sample running employees out of one hundred and seventy five sample running employees are suffering of job security.

Suggestions

- ✓ Private transport management should give training to drivers how to save the diesel, tire, and accident free driving.
- ✓ Proper training is given to the driver and conductors how to deal with the passengers.
- ✓ Drivers are required to be well experienced and be aware of driving skill before embarking on any driving assignment.
- ✓ The driver has to produce an eye fitness certificate from an eye specialis nominated by the management before his confirmation in the service.
- ✓ To provide equal pay for equal work and to increase the Pay-scale of the employees who work sincerely and productively.

Conclusion

Stress in the workplace has become the black plague of the present era. Stress can make an individual productivity and constructive when it is identified and well managed. Some of the employees fear with the fact that low quality of their work puts stress on them. Stress has been identified to be a major problem in the operation of mode of travel. The transport employee's key element in the system is very easily liable to stress in the course of carrying out his routine responsibility. Many factors that can initiate stress in the transport employees include road conditions, concentration on the road, lack of poor working conditions and design of the vehicle etc.

References

- ★ Tarika Sethi, Ruchika Veramani and Monika Verma, “Stress Management: Its cause and effect”, International journal of Research in Commerce and management, Volume 6, Issue 2, 2015.
- ★ Eugene, F. D. C., & Regi, S. B. Advantages and Challenges of E-Commerce Customers and Businesses: In Indian Perspective. *International Journal of Research–Granthaalayah*, 4(3), 7-13.
- ★ K.Neela Pushpm and S. Palanichamy, “Road Transport in Tamilnadu”, International Journal of Humanities and Social Science Invention, Volume 2, Issue 4, 2013.
- ★ Regi, S. B., & Golden, S. A. R. (2014). A Descriptive Study On The Role Of Consumer Psychology And Behaviour In Product Purchasing. *Indian Streams Research Journal*, 3(12), 1-6.
- ★ Aamir Sarwar, “Work Stress and Family imbalance comparative study of Manufacturing and Service sector in Pakistan”, Middle-East journal of Scientific Research, 2013.

Impact of Dow Jones returns on Cryptocurrency

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Abstract

Though Cryptocurrencies is of a recent introduction into the world of Finance it has caught the imagination of the investing community and the number of investors have grown exponentially. This study makes an attempt to study the top 3 cryptocurrency by market capital and that has been in existence for more than 3 years. The study found that these cryptocurrency has given a much higher returns as compared to the Dow Jones. This study also tries to unearth if there has been any relationship between returns of Dow Jones Industrial Index and that of the Cryptocurrencies

Keywords: Cryptocurrency, Bitcoin, Litecoin, Ethereum, Virtual Currency

Introduction

A cryptocurrency is a digital asset designed to work as a medium of exchange that uses cryptography to secure its transactions, to control the creation of additional units, and to verify the transfer of assets. These currencies do not have a status of a legal tender. (Tu & Meredith, 2015) Cryptocurrencies are a type of digital currencies, alternative currencies and virtual currencies. Crypto currencies use decentralized control as opposed to centralized electronic money and central banking systems. Cryptocurrencies are very innovative in its genesis in the modern financial system and may emerge as the leading currencies being used for payment and may show up as a sign of emerging economy. (Dostov & Shust, 2014)

In centralized banking and economic systems such as the Federal Reserve System, corporate boards or governments control the supply of currency by printing units of fiat money or demanding additions to digital banking ledgers. In case of decentralized cryptocurrency, companies or governments cannot produce new units, and have not so far provided backing for other firms, banks or corporate entities which hold asset value measured in it. The underlying technical system upon which decentralized cryptocurrencies are based was created by the group or individual known as Satoshi Nakamoto.

The likelihood of cryptocurrency replacing a legal tender may not be ruled out in future but however will depend upon how regulators over the years react and respond to the emergence of these digital currencies. (Harwick, 2016). Virtual currency may hold key to in the evolution of the banking system however there could be impediments in the linking the virtual and real name. (Thomas, 2014)

As of September 2017, over a thousand cryptocurrency specifications exist; most are similar to and derive from the first fully implemented decentralized cryptocurrency, bitcoin. Within cryptocurrency systems the safety, integrity and balance of ledgers is maintained by a community of mutually distrustful parties referred to as miners: members of the general public using their computers to help validate and timestamp transactions,

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adding them to the ledger in accordance with a particular timestamping scheme. Miners have a financial incentive to maintain the security of a cryptocurrency ledger.

According to Jan Lansky, a cryptocurrency is a system that meets all of the following six conditions:

- 1) The system does not require a central authority, distributed achieve consensus on its state.
- 2) The system keeps an overview of cryptocurrency units and their ownership.
- 3) The system defines whether new cryptocurrency units can be created. If new cryptocurrency units can be created, the system defines the circumstances of their origin and how to determine the ownership of these new units.
- 4) Ownership of cryptocurrency units can be proved exclusively cryptographically.
- 5) The system allows transactions to be performed in which ownership of the cryptographic units is changed. A transaction statement can only be issued by an entity proving the current ownership of these units.
- 6) If two different instructions for changing the ownership of the same cryptographic units are simultaneously entered, the system performs at most one of them.

According to Hileman and Rauch (2017) from the Cambridge Centre for Alternative Finance, there are a growing number of people around the world who owned cryptocurrency and the figure in 2016 stood at 10 million people. Switching to Cryptocurrency has many fold benefits one among them would be to reduction in charges while remitting money from a foreign country. Moreover as the number of Cryptocurrencies increase the cost of mining will also decrease. (McCallum, 2015)

Bit coin was originally created by software developer with the pseudonym Satoshi Nakamoto who developed the electronic payment system and based it around mathematical proof. The result was a currency independent from central authorities and almost instantly transferable with very low transaction fees.

Blockchain is a continuously growing list that records every cryptocurrency transaction and secures each block using cryptography. Each part of the chain contains a timestamp and transaction data which is approved and stored on a peer-to-peer network. The main security benefits of a blockchain are that once a block has been stored, it cannot be altered, ensuring that any cryptocurrency ledgers can't be tampered with.

If you imagine a blockchain as a medical record and each entry as a block labelled with the date and time it was entered. These entries make up a history which is important for determining future treatments, so no one can alter these past records. However, the doctor will have a key that allows him to make new records, which adds to the block of entries.

Crypto currency also faces impediments such as security and Initial investments required to mine such currency (Moore & Christin, 2013).

Cryptocurrency in India Regulation

Cryptocurrencies are now emerging as hotbeds of speculation. A classic example is the bubble that has been undergoing in Bitcoin. The crypto currency reached at a sky-high price of \$19200 in December 2017 from just \$1 in May 2011.

Internationally, cryptocurrencies are regulated as commodities by several central banks. They are not treated as currencies as the name suggests and rather they have emerged as investor's darlings because of the curious techno-cum only few credible cryptos have got the status of currencies. Over the last six years, several Bitcoin exchanges that are not regulated by national regulators are carrying out transactions in bitcoin.

The rising prices of bitcoin always indicate a steep correction of bitcoin prices. According to Wall Street Journal (WSJ), majority of bitcoin trade are concentrated in East Asia. Japan, South Korea and Vietnam together accounted for 80 percent of bitcoin trading activity at the end of November, according to WSJ. Interestingly Japan allowed the use of bitcoin and several other cryptocurrencies for payments.

Indian scenario

In India, bitcoin trade is carried by unregulated digital exchanges that are 11 in number according to Tax Department estimates. People are investing in money expecting huge returns as Bitcoin registered a price increase from just \$1000 in January 2017 to \$15000 at the end of 2017.

But anytime a burst can happen. In that case, investors will lose their money. As Bitcoin has entered a bubble phase and speculators have shown big interest in several other crypto variants, the RBI and Finance Ministry have come with timely warnings against dealing with crypto currencies.

The RBI as the central Bank issues money/payment related warnings on VCs. Regarding the asset/trading security side, the government and SEBI are giving their own cautions. Similarly, the tax Department is scrutinising the actions by investors to check the tax implications. (www.indianeconomy.net, 2018)

RBI's stance on Crypto currencies

The fundamental stand of the RBI about bitcoin and other cryptocurrencies is that they are not legal tender currencies. They can't be used for payments as usual currencies. Rather, they have big risks without any regulation and support. The RBI has issued warning in three times first in December 2013, followed by February 2017 and last on December 5, 2017. The initial caution by the RBI in 2013 describes why investment in virtual currencies like Bitcoin is risky.

All the three cautions/warnings provided information to users, holders and traders of Virtual Currencies (VCs) including Bitcoins regarding the potential economic, financial, operational, legal, customer protection and security related risks associated in dealing with such VCs.

Virtual currencies or VCs as a medium for payment are not authorized. The central bank also highlighted absence of regulation of virtual currency trading. "No regulatory approvals, registration or authorization is stated to have been obtained by the entities concerned for carrying on such activities." Though government has not been quite enthusiastic about cryptocurrency, it has shown a greater interest in blockchain. Cryptocurrency industry believes that blockchain and cryptocurrencies may have to be together at all times (Mint, 2018).

The creation, trading or usage of VCs including Bitcoins, as a medium for payment is not authorized by any central bank or monetary authority. No regulatory approvals, registration or authorization is stated to have been obtained by the entities concerned for carrying on such activities. As such, they may pose several risks to their users, including the following: Virtual currencies are stored in digital form and hence are prone to losses due to hacking, loss of password, compromise of access credentials, malware attack etc. Since they are not supported by an authorized central registry or agency, the loss of the e-wallet could result in the permanent loss of the VCs held in them.

Payments by VCs, such as Bitcoins, take place on a peer-to-peer basis as there is no authorized central agency to regulate such payments. Hence, there is no way to settle customer problems / disputes / charge backs etc.

Blockchain

The validity of each cryptocurrency's coins is provided by a blockchain. A blockchain is a continuously growing list of records, called blocks, which are linked and secured using cryptography. Each block typically contains a hash pointer as a link to a previous block, a timestamp and transaction data. By design, blockchains are inherently resistant to modification of the data. It is "an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way". For use as a distributed ledger, a blockchain is typically managed by a peer-to-peer network collectively adhering to a protocol for validating new blocks. Once recorded, the data in any given block cannot be altered retroactively without the alteration of all subsequent blocks, which requires collusion of the network majority.

Blockchains are secure by design and are an example of a distributed computing system with high Byzantine fault tolerance. Decentralized consensus has therefore been achieved with a blockchain. It solves the double spending problem without the need of a trusted authority or central server.

The block time is the average time it takes for the network to generate one extra block in the blockchain. Some blockchains create a new block as frequently as every five seconds. By the time of block completion, the included data becomes verifiable. This is practically when the money transaction takes place, so a shorter block time means faster transactions.

Mining

In cryptocurrency networks, mining is a validation of transactions. For this effort, successful miners obtain new cryptocurrency as a reward. The reward decreases transaction fees by creating a complementary incentive to contribute to the processing power of the network. The rate of generating hashes, which validate any transaction, has been increased by the use of specialized machines such as FPGAs and ASICs running complex hashing algorithms like SHA-256 and Scrypt. This arms race for cheaper-yet-efficient machines has been on since the day the first cryptocurrency, bitcoin, was introduced in 2009. However, with more people venturing into the world of virtual currency, generating hashes for this validation has become far more complex over the years, with miners having to invest large sums of money on employing multiple high performance ASICs. Thus the value of the currency obtained for finding a hash often does not justify the amount of money spent on setting up the machines, the cooling facilities to overcome the enormous amount of heat they produce, and the electricity required to run them.

Hypotheses Formulation

The study aims to develop a relationship between the returns of Bitcoin and the other popular cryptocurrencies. The model tries to establish as to how strongly is Bitcoin related with Litecoin and Ethereum. It also tries to see as to how be these cryptocurrencies returns related to the Dow Jones Index.

H1: There is a significant relationship between the returns of the Cryptocurrencies and the Dow Jones Industrial Index

H2: There is a significant relationship between the returns of Bitcoin and Litecoin & Ethereum

Sample selection and Research Methodology

The sample of 32 months was taken into consideration for the research from 2015 to 2018.

Market Capital of Top 5 Cryptocurrencies

Cryptocurrencies	Market Capital
Bitcoin	\$116,607,105,622/-
Ethereum	\$ 37,730,963,994/-
Ripple	\$19,731,806,774/-
Bitcoin Cash	\$11,082,429,017/-
Litecoin	\$6,718,579,746/-

Out of the top market cap cryptocurrency, only Bitcoin, Ethereum and Litecoin had data for more than 3 years and therefore only those 3 cryptocurrency were considered in the research. The three cryptocurrency that is Bitcoin, Litecoin and Ethereum were compared with each other as well as the data from Dow Jones Industrial Average.

The data was analysed using Regression and Anova to so as to test the hypothesis.

Data Analysis

The study was conducted by using a descriptive statistics and Anova test to check the variance in the returns.

Descriptive Statistics

Particulars	Rn-Bitcoin	Rn-Litecoin	Rn-Ethereum	Dow Jones
Monthly Log Returns	11.5%	12.6%	21.5%	1.3%
Log Returns (at the end of 3 Years)	356%	390%	668%	41%
Mean	0.112139306	0.123463578	0.189711656	-0.050701763
Standard Error	0.03727041	0.056400919	0.082275192	0.086141615
Median	0.13381374	0.044282819	0.165912593	-0.014922445
Standard Deviation	0.210833278	0.319051777	0.465418771	0.487290561
Sample Variance	0.044450671	0.101794036	0.216614633	0.237452091
Kurtosis	0.309809543	0.976392621	-0.204802745	16.94175226
Skewness	-0.184824187	0.730193663	0.230612092	-3.190701511
Range	0.93047904	1.521799365	1.903738128	3.382770434
Minimum	-0.397637191	-0.552615508	-0.770470924	-2.344594691
Maximum	0.532841849	0.969183857	1.133267204	1.038175743
Sum	3.588457778	3.950834483	6.070772986	-1.622456407
Count	32	32	32	32

The cryptocurrencies during the period of study had a higher return than the returns of the Dow Jones Index. The monthly returns of the Dow Jones Index were lower during the period. However it is also noticed that the Dow Jones had a standard deviation had been greater than that of the cryptocurrency in the study.

Whether the differences in the returns are significant could be understood by the ANOVAs test

Anova: Single Factor						
SUMMARY						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
Rn-Bitcoin	31	3.560694963	0.114861128	0.045687392		
Rn-Litecoin	31	3.895648068	0.125666067	0.105026766		
Rn-Ethereum	31	6.678092697	0.215422345	0.201976746		
Dow Jones	31	0.406350585	0.013108083	0.000942875		
ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	0.63735641	3	0.212452137	2.403075154	0.070951	2.680168
Within Groups	10.60901335	120	0.088408445			
Total	11.24636976	123				

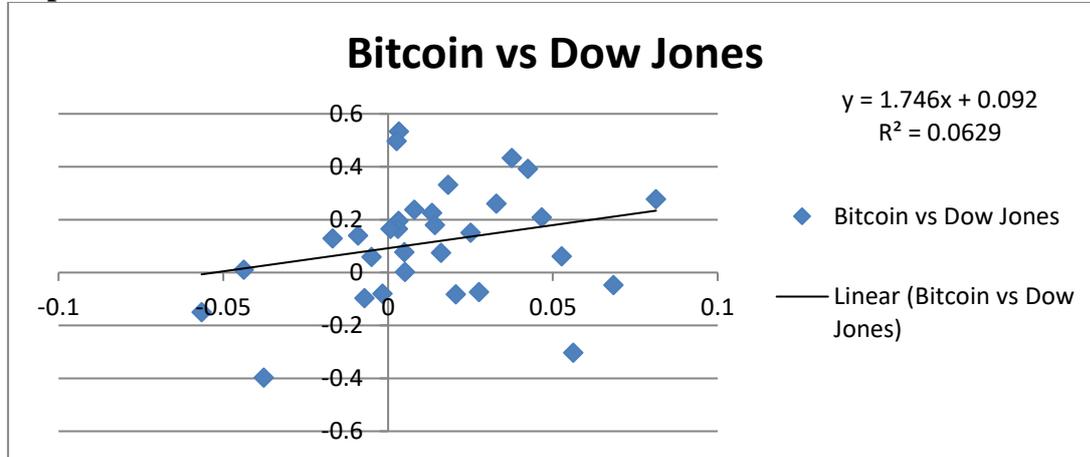
The variance between the groups had a p (0.07095) which is greater than 0.05 hence we can infer that the difference in the mean is not significant.

t-Test: Two-Sample Assuming Equal Variances		
	<i>Dow Jones</i>	<i>All Currencies</i>
Mean	0.013108083	0.15198318
Variance	0.000942875	0.071906248
Observations	31	31
Pooled Variance	0.036424561	
Hypothesized Mean Difference	0	
df	60	
t Stat	-2.864791755	
P(T<=t) one-tail	0.002871796	
t Critical one-tail	1.670648865	
P(T<=t) two-tail	0.005743591	
t Critical two-tail	2.000297804	

However conducting a post hoc test reveals that the Dow Jones returns were significantly different to the average returns of the Cryptocurrencies and was greater than the Dow Jones

Regression

Impact of Dow Jones on Bitcoin / Litecoin / Ethereum



Summary Output

<i>Regression Statistics</i>	
Multiple R	0.25082483
R Square	0.06291309
Adjusted R Square	0.03059975
Standard Error	0.21045039
Observations	31

ANOVA

	<i>d</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.08623	0.08623	1.94696978	0.17350806
Residual	29	1.284392	0.04428	3	5
Total	30	1.370622			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>
Intercept	0.09197454	0.041203	2.23220	0.03348865	0.00770412
X Variable 1	1.74598994	1.251302	1.39533	0.17350806	-0.81320992

The Regression line wherein the Dow Jones is the independent variable and the Bitcoin is the dependent variable shows a P (0.1735) which shows that the model is not significant.

Moreover the changes in the return in the Bitcoin is explained by just 6.2 % by the changes in Dow Jones

Discussions and Conclusions

The above test fails to reject the first Hypothesis (H1: There is no significant relationship between the returns of the Cryptocurrencies and the Dow Jones Industrial Index) and shows that the model by regression is a weak model.

The ANOVAs test fails to reject the Hypothesis (H2: There is no significant relationship between the returns of Bitcoin and Litecoin & Ethereum) since the difference in mean is not significant.

Though the Cryptocurrency is relatively new and the data to make a comprehensive study is not available, it is difficult to confirm this study with other similar studies. Though some studies found a significant positive impact of Dow Jones on the Bitcoin, it was considered unreliable by the researcher. Moreover most of the results confirmed to the long run impact only. (Ciaian, Rajcaniova, & Kancs, 2016). However this research has shown that during a shorter period of 3 years there has been no significant impact of Dow Jones on the returns of Cryptocurrency. The monthly average returns posted by Cryptocurrency during the Three years far outweighed the returns of Dow Jones during this period and confirms to earlier research wherein researchers stated that virtual currencies have grown exponentially in recent years and its popularity continues to grow. (Lee, Long, & McRae, 2015). Therefore returns can steady in future depending on the introduction of newer virtual currencies and response of regulators to such virtual currencies.

Bibliography

Ciaian, P., Rajcaniova, M., & Kancs, D. (2016). The digital agenda of virtual currencies: Can BitCoin become a global currency? *Information Systems and eBusiness Management*; , 883-919.

Dostov, V., & Shust, P. (2014). Cryptocurrencies: an unconventional challenge to the AML/CFT regulators? *Journal of Financial Crime* , 249-263.

Dumitrescu, G. C. (2017). Bitcoin – A Brief Analysis of the Advantages and Disadvantages. *Global Economic Observer* , 63-71.

Harwick, C. (2016). Cryptocurrency and the Problem of Intermediation. *The Independent Review* , 569-598.

Lee, J., Long, A., & McRae, M. (2015). Bitcoin Basics: a Primer on Virtual Currencies. *Business Law International* , 21-48.

McCallum, . B. (2015). THE BITCOIN REVOLUTION. *Cato Journal; Washington* , 347-356.

Mint. (2018, 2 5). Cryptocurrency not legal tender in India, but blockchain gets new life in Budget 2018. *Mint* , pp. 5-12.

Moore, T., & Christin, N. (2013). Beware the middleman: empirical analysis of BitCoin-exchange risk. *Financial Cryptogr Data Secur* , 25-33.

Thomas, Z. (2014). Why Bitcoin could be the key to banking's future. *International Financial Law Review* , 31-544.

Tu, K. V., & Meredith, M. W. (2015). RETHINKING VIRTUAL CURRENCY REGULATION IN THE BITCOIN AGE. *Washington Law Review* , 271-347.

www.indianeconomy.net. (2018, January). *Cryptocurrency regulation in India*. Retrieved 3 5, 2018, from Indian Economy , Economy and Finance: <https://www.indianeconomy.net>

Employee Engagement: A HR Trend

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Abstract

Employee engagement is a concept that started working from earlier era but came into existence as a buzz word now. It started from recruitment because organization wants to retain their best employees with them and wants new joiners with commitment, professional knowledge and best capabilities. This is fruitful for both organizations as well as employees. By engaging employees it will lead to the progress of organization productivity. Engaged employees will facilitate the customer with more satisfaction. Employee Engagement is one of the broader concepts of Human resource management. Employees are termed as the assets of organization. If the employees are not engaged properly this will lead to mismanagement.

Thus to remain the employees in the organization, who are talented for a longer period of time is turned to be a biggest challenge. Organization invests a lot of time and money on training and recruitment of employees. Engaged employees are more emotionally connected with their job and organization. Bailey C. et al. (2017), Faisal Azeem, Rubina and Adil Tahir Paracha (2013), have discussed several variables of Employee Engagement from psychological, organizational and Human Resource Development perspective at a large. At this backdrop this paper is an attempt the recent trends of Human Resource Management as employee Engagement one of them.

Keywords: Employees, Employee Engagement, Recruitment, HRM.

Introduction

Employee engagement is a concept of the relationship between an employee and its organization. One who is fully incorporated by and committed to their work and acting positively towards the organization's interest and growth is termed as employee engagement. Employee should feel enthusiastic about their work that's the only key to deal with employee engagement. Engaged employee thinks about future of their company and willing to invest their discretionary efforts for seeing organization success.

The leaders or managers of organization can engage the employees' hands, heart and head by common ten C's of employee engagement emerge from literature were convey, connect, career, contribute, clarity, collaborate, control, credibility, congratulate, and confidence. Practitioners and academicians argued that by creating a workforce who is fully engaged can achieve competitive advantage. In organization leaders should find the level of employee engagement and find out the reasons behind the lack of employee engagement practices and try to remove those reasons. Employee engagement is difficult to achieve but can be done by proper and dedicated efforts.

Along with employee engagement, employee disengagement is also present in organizations. This behaves like a killer for employees which kills them silently and they feel isolated and uncommitted to their workplace. The reason behind this is difference between the management and staff, lack of employee-employer respect or no sharing of ideas behind the future aspect of company. Employees were told to focus only the given

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work to them. There are around 13 personality traits of a disengaged employee which are irresponsible, gossip, complain, lack enthusiasm, liar, makes excuses, independent, know-it-all, no initiative, doesn't help others, distracted, no questions and no growth.

The employee engagement phenomenon has been classified according to level of their engagement. Employees can be differentiated as engaged employees who do their work passionately and with enthusiasm and are aware about the connection with the organization. They give their physical and emotional input to the organization performance and its development. Second is Not-engaged employee who do their work but without energy, enthusiasm and passion. It seems like sleepwalking.

Third one is Actively- disengaged employee who are unhappy with their work and actively acting out this feeling. They have a negative impact over the engaged employee and their work and achievements.

Research Objective and Research Methodology

To objective of the present paper is to discuss the factors affecting Employee Engagement. Employee Engagement turns out to be an emerging scenario in Human resource management. The sources of paper were secondary. There were the reviews of literature collected from reputed magazines, journals, newspapers and relevant websites.

Literature Review

There is vast literature available on Employee Engagement discussing the benefits of Employee Engagement towards different organization. This is the concept that deals with the employees and their relation with their organization. The paper stresses on the review available on the Employee Engagement related to special reference to banking sector.

Bailey C. et al. (2017) was an attempt to focus on the literature available on engagement. The researcher did an extensive review of literature by systematic synthesis of narrative evidence. They took 214 studies which focuses on meaning, antecedents and outcome of engagement. In the paper the author had identified six different conceptualization of engagement which was dominated by Utrecht Group's "work engagement" measure and its construct. The paper also deals with theorization of engagement within the job demands and its resource framework. As a conclusion psychological state, leadership, job design, organization and team factor and organizational interventions were found as five groups of factors which were seemed to be antecedents to employee engagement. The paper shows that engagement had a positive relation with extra-role performance, organizational performance, task performance and individual morale.

Gaur D and Mehta D. (2016) discussed the literature available on employee engagement to find the factors affecting employee engagement. This was a review paper relating employee engagement as upcoming HR trend. According to the researcher the engagement process get started at the very first day of the joining and will lead to a mile stone in the organization. Employee engagement deals with the relation between the employee and the employer. The researcher collected data through several research papers, magazines and websites. As a result they found that if employee were given proper motivation and collaboration and the employer treat them with honesty and trust will lead to several innovation and opportunities for the employee as well as employer.

Fatma and Shyqyri (2015) suggested that relationship of employee engagement along with organizational communication. The research deal with the relationship between employee engagement and demographic determinants in Albanian bank sector. The researcher finds that the dimensions communication satisfaction strongly impact

employee engagement. The data was collected through questionnaire which was distributed among 405 employees which was part of the bank sector services in Albania, both central and second levels banks.

The sample was consisted of employees from all positions and age groups within the organization. The researcher previously piloted the questionnaire as a first phase among employees. The bank selected as sample in the country was randomly drawn where it can aim to produce representative sample as a result mat national level. The researcher used SPSS 15.0 for data analysis. This research had practical implications for bank sector, mainly for human resources department and top management as how to increase the engagement of the employees.

Ghamwala et al. (2014), tried to compare employee engagement Practices at Private and Public Banks. Researcher aims to find those factors that can be used to promote employee engagement practices in selected Banks. The sample population took by researcher was 100, comprising of 50 respondents from public sector banks and 50 respondents from private sector banks. The respondents were selected through Convenience sampling method from South Gujarat Region Seven Private sector banks considered for the study are ICICI bank, Federal Bank, Axis Bank, HDFC Bank, HSBC Bank, IDBI Bank, Kotak Mahindra Bank.

Six public sector banks included in the study were Bank of Baroda, CBI, SBI, Bank of India, Dena bank, Punjab national bank. Researcher used structured questionnaire used 39 statements for data collection by Likert scale. Study found that in Public Sector Unit Banks most prominent cultural factors includes loyalty, knowledge sharing, open communication, equitability, while least factors are motivation, celebrating success, and participation. Most major cultural factors in private banks found are loyalty, inter- personal orientation, caring culture, open communication, growth and advancement.

Least prominent factors found were motivation, mutual respect, trust, open communication, and risk taking culture. Study also found that prominent job related factors in PSU banks found were job satisfaction and job clarity while in private banks Job clarity, feedback on productivity and elasticity of goal etc. were found and slightest important factors that were similar in both banks were job fit, flexibility to work and continuous improvement.

Mishra et al. (2013) discussed about the employee engagement regarding banking sector. Employee engagement was a new concept for human resource study and organizations which are creating environment for the implementation of employee engagement activities. Organizations make attempts to have proper employee engaged activities. To contribute their talents for the organizational performance this leads to an increment in productivity of organization.

The main objective of paper was to study the factors affecting the employee engagement among the Kutch district of Gujarat. The sub objectives of this paper were to find the level of employee engagement in public and private sector banks. Identify the factors affecting the perception towards the employee engagement of banks and to do a comparative analysis for the factors affecting the employee engagement at public and private sector banks. The author used questionnaire for collection of data. The questionnaire consisted of 25 statements regarding the employee engagement and second part with demographic factors. Two government and two private banks were taken for the study. 100 filled

questionnaires were chosen for the data analysis. The instrument validity was checked by Cronbach's Alpha.

The author used Independent sample t – test for study the effect of demographics (age, education and experience) on employee engagement factors and to analyze the difference between the two groups- public and private banks, one way ANNOVA was applied through SPSS 19.0. As a result the researchers found that banks should improve their employee engagement activities to retain the talents. The limitation of the study was its confinement of four banks only.

Gulati (2012) found that every organization expected from their employee to believe in their mission, purpose and values. Employee should show their commitment towards employer and customers by through his actions and attitudes. The researcher had defined this situation as employee engagement. Engaged employee defined as one who had complete believe in his organization, and desire to work hard and make the organization better. They were characterized by behaviors and grouped in to three categories: say, stay and strive.

The main objective of paper was to understand the core concept of employee engagement and facilitators of employee engagement that can help organizations to grow by prioritizing and deciding on the initiatives. The author also discussed the three aspects of employee engagement - employee's interaction at all levels, employees and their own experiences and ability of employers to create conditions that promote employee engagement.

There were characteristics or features of employee engagement having a detail view. These were ensuring efficiency and effectiveness in completion of task, its along term initiative, top to bottom process, its measures should be cost effective, effect of leader over employee towards engagement, to reach the heart of employee. The factors influencing employee engagement were perception of employee towards importance of job, clarity of job expectation, regular feedback from superiors, quality work relationship with peers and superiors and perception of employees towards ethics and values of organization.

Abraham (2012) discussed that retaining of employees' in today's era was very important and employee engagement was a way of doing that. The author found that human resource was the biggest asset organization. Along with the services and product the knowledgeable employee were treated as the source of providing competitive advantage to the organization. Keep employee motivated and retain them was the constant endeavor of management. Engaged employees create value of organization and it get affected by job satisfaction.

Job satisfaction was defined as the extent to which employees like doing their work. The main objective of study was to find that the impact of job satisfaction on employee engagement and to know whether the education of employees differ from factors of job satisfaction. This was a descriptive study done to find the effect of job satisfaction on employee engagement among a private insurance company including 30 employees of Cochin. A questionnaire consisting of Gallup 12 of employee engagement and job satisfaction subscale was used for data collection.

The analysis was done by regression using factors nature of job, superior's recognition to one's work, cooperation between departments, team spirit, proper and equal administration of organization contributed to a moderate state of employee engagement. As a result of independent samples t- test show that there was cooperation between departments varied with education.

Garg and Kumar (2012) explored the importance of employee engagement in pharmaceutical sector. Employee engagement was a term that came into existence around in year 2000. The researcher defined that according to Gallup there are three kinds of employees- engaged, not engaged and actively disengaged. Employee engagement was a driver for their organizational success and development. The objective of study was to find the impact of employee engagement in pharmaceutical sector companies. The questionnaire was developed for collecting the data.

A structured questionnaire of close ended questions was used for the research. Likert Scale (five point scale) was used in the questionnaire administered for the studies ranging from strongly agree to strongly disagree. The collected data was analyzed by SPSS was used to analyze the interpretation and inference for the organization. This was descriptive study to find the solutions of problems taken up as objectives of the study. The sample was collected of 70 employees from pharmaceutical sector. The researcher found that all the parameters designed for the study were significantly and strongly correlated with each other.

Further with the help of factor analysis two out of eleven factors were found extremely important job satisfaction and compensation.

Ram and Prabhakar (2011) recommended that to retain the talented staff the key factor is to create a balance between their home life and work environment. By taking proper importance of employee engagement employee turnover can be minimized and a little commitment on the behalf of organization can be done through effective retention and WLB strategies. The study results confirmed that there was a relationship between perceived organizational support and employee engagement.

The effect of extrinsic and intrinsic rewards, job characteristics, perceived supervisor support, perceptions of procedural justice, perception of distributive justice have a positive impact over employee engagement. The respondents chosen by researcher also valued appreciation, growth opportunities along equitable pay plans and challenging work. The researcher found that employee engagement affects the job satisfaction too.

Desai et al. (2010) investigated on two Indian business companies conglomerate one is manufacturing cars and other is an IT service provider. The main objective of the study was to find if there is any significant difference between the employee engagement levels of IT service provider and manufacturing company in the same association of groups. Secondly, to find was there any level of difference of predictors of employee engagement of IT and manufacturing employees. Third, to find the degree to which the nature of organization impact one's score on defined dimensions and to fine the aspects which happen to create maximum effect in differentiating between low engaged and high engaged employees.

Sample of 100 male executives of middle level half from the IT service provider and rest half from the car manufacturing companies belonging to Bangalore city, India. The potential participants in the study were connected through their supervisors by assuring them of full confidentiality assurance. The researcher made two principal questionnaire along with general information were sent to 200 willing participants. From which 130 were returned and with 65% response rate and screened carefully on the parameters odd age, marital status and socio economic standing. The analysis was done by using general information schedule, employee engagement predictor questionnaire and Utrecht work

engagement scale. Researcher concluded that importance of employee engagement in the organizational setting was undeniable.

The researcher found that many factors have a significant effect over middle level executives in Indian scenario. Training and development, community and organizational culture were the factors considered important for improving the employee engagement levels in the organization.

Bhatnagar (2007) described that Talent management was becoming a growing concern area in literature. The main objective of paper was to find the relationship between the talent management and levels of employee engagement using a mixed method design. The research methodology used for the first phase.

There was a survey on 272 ITES/BPO employees by using Gallup workplace audit. Focus group interview discussion was done on the bases of reason behind the abrasion and the unique problems related to employee engagement. One of the BPO organizations was chosen from the phase first sample randomly for second phase and exit interview data was analyzed using content analysis and factor analysis.

As a result of study the author found that in first phase the low engagement score indicated by low factor loading in the beginning of career and completion of 16 or more months with the organization whereas, at intermediate stage of employment high factor loading indicated high engagement levels but for limited period of time.

In the second phase factor loading indicated three different factors of organization culture, incentives along with career planning and organization support. The limitation of the study was its sample size of 272 respondents. The strength of the paper was data triangulation which includes a survey, unstructured focus group interview and mixed method approach. This paper provides implications that this area could be further researched in future and an independent scale of employee engagement can be constructed by focusing on the antecedent variables and testing them for theoretical bases.

Ncube and Jerie (2006) discussed that employee engagement plays a vital role in finding the competitiveness of company. By knowing the levels of employee engagement in an organization, its level of successfulness can be counted. This research highlighted the different determinants of competitive advantage in two organizations, but equally defining the significance of employee engagement and to strength the other factors. As a result the researcher found that there exist differences in overall performance behavior between the two organizations.

The author found that there was strong evidence that highly engaged workgroup out-group perform along with lower employee engagement.

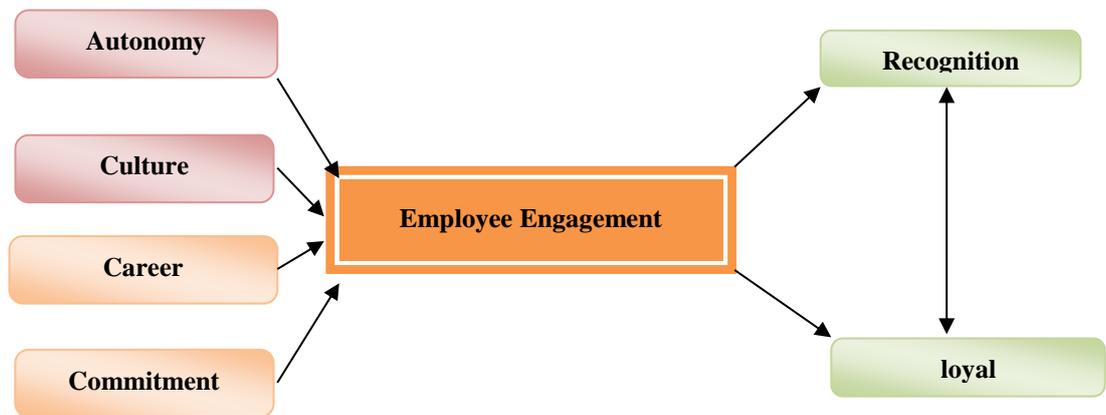
Organization having larger number of employee's still which were disengaged will fall under the poor employee engagement which will affect the productivity of organization. Employees of the organization having less completely disengaged employees were strongly satisfied and willing to stay with their employer for longer run. As a result the researcher found that the hotel with higher employee engagement levels enjoys the competitive advantage with 43.7% share of market against 17.3% market share of other hotel.

Kahn (1990) suggested that people use various degrees of their selves cognitively, physically and emotionally having implication on both their work and experiences in work role performance. The researches had been conducted on members of an architecture firm and summer camp counselor to explore the condition where people engage themselves and

express their personal selves and disengage or withdraw and preserve their personal selves. The author has discussed three psychological conditions safety, meaningfulness and availability and their contextual and individual sources.

Employee engagement can be defined as a condition in which employees are emotionally and intellectually confined to organization and group which can be measured by three primary behaviors say, stay and drive. On the basis of above literature review and noteworthy contributions we can understand that Employee engagement is a concept that deals with the employer and employee simultaneously. With the changing era the demands of employees too increase which should be fulfilled by the organization otherwise it will have an adverse effect over the organization. The organization treats their employees as valuable assets and to retain them for longer time employee engagement can be used as a key concept.

Proposed Model for Integrated Development of Employee Engagement



Source: Conceived and Developed by the authors Based on Literature Review

Conclusion

A deep study of literature review suggests that though employee engagement is not an easy concept to understand as well as bit hard to be implemented. There are several factors affecting this concept but they might vary from sector to sector like if the organization is a banking organization then the skills and engagement to retain them is different to employees working in research area related organization. We can find from the contributions of several researchers that employee engagement and employee stress levels having different factors related to each other. Some activities of employee engagement can lead to impact the employee stress levels. The research also determines that stressors may consist of various stimuli in the environment like social or climate conditions created by several employee engagement activities. It is expected to be useful for HR consultants, experts and higher ups in understanding and in reorienting organizational HR practices in such a way that employee loyalty becomes significant future. The study may also open new research vistas for further research with respect to non banking and other service sector organizations.

Bibliography

- Abraham Susan (2012), Job Satisfaction as An Antecedent to Employee Engagement, South Indian Education Society College of Management Studies (SIES) Journal of Management, 8(2), 27-36.
- Bailey C., Madden A., Alfes K. and Fletcher L. (2017), *The Meaning, Antecedents and Outcomes of Employee Engagement: A Narrative Synthesis*, International Journal of Management Reviews, 19, 31-53.
- Bhatla, N. (2011), To Study The Employee Engagement Practices and its Effect on Employee Performance with Special Reference to ICICI And HDFC Bank in Lucknow, International Journal of Scientific & Engineering Research ,2(8), 1-7.
- Bhattacharyya, D. K. (2006), Research Methodology, Excel Books, India.
- Bhatnagar, J. (2007), Talent Management Strategy of Employee Engagement in Indian ITES Employees: Key to Retention, Employee Relations, 29(6), 640-663.
- Desai, M., Majumdar, B., Prabhu, P. G. (2010), A Study on Employee Engagement in Two Indian Businesses, Asian Journal of Management Research, 81-97.
- Fatma, J. and Shyqyri, L. (2015), The Impact of Communication Satisfaction and Demographic Variables on Employee Engagement, Journal of Service Science and Management, 8, 191-200.
- Farai, N. and Steven, J. (2012), Leveraging Employee Engagement for Competitive Advantage in the Hospitality Industry. A Comparative Study of Hotels A and B in Zimbabwe, Journal of Emerging Trends in Economics and Management Sciences, 3(4), 380-388.
- Ghamwala, R., Thakkar, R. and Almoula S. T. (2014), Comparative Study on Employee Engagement Practices at Private and Public Banks in South Gujarat Region, Global Research Analysis (Gra), 3(4), 106-109.
- Garg, A. and Kumar, V. (2012), A Study of Employee Engagement in Pharmaceutical Sector, International Journal of Research in IT and Management, 2(5), 85-98.
- Gaur D., Mehta D. (2016), Employee engagement: An Emerging HR Trend, Social Change through Quality Education Entrepreneurship and Innovative Business Practices, (Eds.) R. Chowdhary, S. Arora, Y. Phatak, R.K. Sharma, Excel Books, New Delhi, pp. 314-319.
- Gulati G. K. (2012) Employee Engagement: Key to Success for Contemporary Organizations, Gian Jyoti E-Journal, 2(4), 62-77.
- Kahn, W.A. (1990), Psychological Conditions of Personal Engagement and Disengagement at Work, Academy of Management Journal, 33(4), 692-724.
- Kothari, C.R. (2009), Research Methodology: Methods & Techniques (Second Revised Edition), New Age International Publishers, New Delhi.
- Mishra, D., Kapse S. and Bavad D. (2013), Employee Engagement at Banks in Kutch, International Journal of Application or Innovation in Engineering and Management (IJAIEM), 2(7), 349-358.
- Singh Namrata (2015), Bosses Not Money Make Staff Stick To Co, Times Of India (Indore), March 11, Page 12.

Factors influencing consumers buying behaviour of organic food products in Coimbatore City

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M.S. Kavitha**

Abstract

The consumer awareness about the environment is increasing day by day because of climate change, more hot and rain problems it leads to health issues. The public think about pollution free products and manufacturing, it is result of green products, green market and it expanded at remarkable place. This environmental awareness and consciousness affect the consumer behaviour of green products and green market. The organic products and fertilized and hybrid products are available in the market which consumers buy and use. The consumers compare the organic with other products price; they feel the organic products are high. This study is important that which factors influence the consumers to buy the organic food products, the study result also helps the farmers to concentrate their organic food products. This study carried out with one hundred and seventy five respondents. The researcher used convenient sampling methods, the researcher visited ten number of organic products shops for data collection. Four major dimensions were formulated by the researcher i.e. (i) Product related; (ii) Price related; (iii) Environmental Related and (iv) Consumer's related. Thirteen variables were formulated regarding product related. The researchers concluded that the organic seeds and cultivation process are less cost comparing fertilizer, the farmer should consider these things and come to organic production cultivation and the benefits should goes to the consumers.

Keywords: Organic food products, Fertilizers, products related, price related, environmental related and consumer related.

Introduction

The consumer awareness about the environment is increasing day by day because of climate change, more hot and rain problems it leads to health issues. The public think about pollution free products and manufacturing, it is result of green products, green market and it expanded at remarkable place. This environmental awareness and consciousness affect the consumer behaviour of green products and green market. The increased of production and consumption of organic products are which produced by the farmer, which is less impact to the agricultural land and overall environment. The term organic established by National Organic Standards Board of the US department of Agriculture (USDA) in the month of December. The organic food products are produced without the use of sewer sludge fertilizers, growth hormones, most synthetic fertilizers and pesticides, irradiation and antibiotics. The agricultural products are produced organically, including produce of grains, dairy, meat, eggs and processed food products. The food industries are used the term natural to indicate the food has been minimally processed and it preservative free products. The natural foods are could indicate organic foods but not all

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other natural foods are organic products. The researcher's duty is to examine the underlying factors which might influence the inclination of consumer to purchase and consume the organic food products. The behaviour towards organic food consumption is proven by such research, it is believed that formulate a strong market communication and policy strategies. Some developed countries were conducted studies and that might be some socio demographic differences are influence the organic food acceptance and consumption behaviour. The high educated people and high income group of people are more consuming the organic products; it is proven in Lockie et al (2002) studies regarding organic food. They proved that educated people are consuming more than uneducated people like that high income group people taken initiate to consumer organic products. This study was examined the factors which are influence the people's intention to consume the organic products. It also analyzed the demographic characteristics of the respondents buying pattern of the organic products, places to buy, volume of organic products consumed and type of products consumed and other characteristics which provide better picture about the consumers.

Statement of problems

The organic products and fertilized and hybrid products are available in the market which consumers buy and use. The consumers compare the organic with other products price, they feel the organic products are high. The farmer need more time to cultivate it, so that the market price of the organic products is high. The lower middle class people are unable to buy all organic products. The consumers use to travel to get real organic products, some shops are available inside the city. All the organic shops names related to farmers and etc., there are some awareness of health issues because of fertilizers products. This study is important to measure the purchase intention of organic products by the consumers.

Importance of the study

The study conducted to measure the variables which influence to buy the organic products. Nowadays many farmers selling their products through some shop, direct to consumers. The name they fixed for the shop like "Ullavan Angadi", it indicate that the farmer directly supply the agricultural products to the consumers. The pricewise no difference, its felt by the consumers. This study is important that which factors influence the consumers to buy the organic food products, the study result also helps the farmers to concentrate their organic food products.

Sampling design

This study carried out with one hundred and seventy five respondents. The researcher used convenient sampling methods, the researcher visited ten number of organic products shops for data collection. Planned to collect data from twenty customers each shops. But, finally the researcher collected only one hundred and seventy five from the ten numbers of organic shops. So, this present study confined with this data sample.

Tools and techniques

The percentage analysis helped to show the socio economic factors of the sample respondents of this study. Four major dimensions were formulated by the researcher i.e. (i) Product related; (ii) Price related; (iii) Environmental Related and (iv) Consumers related. Thirteen variables were formulated regarding product related. Six variables were formulated regarding price related. Six variables were formulated for environmental related and four variables were formulated for consumers related. The likert five point

scales used to measure the variables. The score minimum 1 and maximum 5 was taken, total taken to find the rank which indicates the variable which influence the dimensions.

Personal factors

The personal information were collected from the respondents and presented in the following table. Forty eight (27.42%) respondents are come under the age group of up to 30 years. sixty (34.29%) respondents are come under the age group of 31 years to 45 years and the remaining sixty seven (38.29%) respondents are come under the age group of above 45 years. Majority (38.29%) of the respondents are come under the age group of above 45 years.

Ninety eight (56.00%) respondents are male and remaining seventy seven (44.00%) respondents are female. Majority (56.00%) of the male members are only coming to shop to buy organic food products.

Twenty eight (16.00%) respondents are government employees. Fifty nine (33.71%) respondents are private employees. Sixty eight (38.86%) respondents are doing business or professionals and the remaining twenty (11.43%) respondents are house wife and retired peoples. Majority of the employees are doing business or professions in the study area.

Table 1: Personal Information of the sample respondents which related to organic food products

Variables	Number of respondents (percentage)	Variables	Number of respondents (percentage)
Age Group		Monthly income	
Up to 30 years	48 (27.42%)	Up to Rs. 25,000	18 (10.29%)
31 years to 45 years	60 (34.29%)	Rs. 25,001 to Rs. 40,000	67 (38.29%)
Above 45 years	67 (38.29%)	Above Rs. 40,000	90 (51.42%)
Gender		Family type	
Male	98 (56.00%)	Joint	101 (57.71%)
Female	77 (44.00%)	Nuclear	74 (42.29%)
Occupation		Educational qualification	
Govt. Employee	28 (16.00%)	Under graduate	24 (13.71%)
Private Employee	59 (33.71%)	Post graduate	98 (56.00%)
Business or profession	68 (38.86%)	Diploma and others	53 (30.29%)
House wife and retired peoples	20 (11.43%)	Sample : 175 respondents	

Eighteen (10.29%) respondents monthly income is up to Rs. 25,000. Sixty seven (38.29%) respondents monthly income is between Rs. 25,001 and Rs. 40,000. The remaining ninety (51.42%) respondent's monthly income is above Rs. 40,000. Majority (51.42%) of the respondent's monthly income is above Rs. 40,000. The high income group people only are thinking about the organic products and plan to buy the organic food products because of price high price.

One hundred and one (57.71%) respondents are joint family members and the remaining seventy four (42.29%) respondents are nuclear family members. Majority (57.71%) of the respondents are joint family members in the study area.

Twenty four (13.71%) respondents are done under graduate. Ninety eight (56.00%) respondents are post graduates and the remaining fifty three (30.29%) respondents are did diploma and other courses. Majority (56.00%) of the respondents are did post graduate degrees in the study area.

Table 2: Product related factors influencing the organic food products

Factors	Number	Mini	Max	Mean	Rank
Perceived organic product quality	175	1	5	3.737	3
Health conscious	175	1	5	3.875	1
Nutrient contents	175	1	5	3.681	2
Accessibility to product information	175	1	5	2.047	12
Convenience	175	1	5	2.381	10
Brand name	175	1	5	2.021	13
Easily degradable	175	1	5	2.942	6
Nature of packaging	175	1	5	2.651	8
Cultural value	175	1	5	1.907	14
Brand image	175	1	5	2.657	7
Freshness	175	1	5	3.348	4
Appearance	175	1	5	2.625	9
Flavor	175	1	5	2.324	11
Taste	175	1	5	3.094	5

The above table shows the factors which product related consumer buying behaviour of the sample respondents regarding organic food products. The respondents were given first rank to “Health conscious” (3.875) followed by “Nutrient contents” (3.681). Third rank was given to “Perceived organic product quality” (3.737). Forth rank was given to “Freshness” (3.348), followed by fifth rank “Taste” (3.094). The respondents least considered the factors “Cultural value” (1.907) thirteenth rank given to “brand name” (2.021). It shows that the consumers are more prefer the organic food products for health conscious.

Table 3: Price related factors influencing the organic food products

Factors	Number	Mini	Max	Mean	Rank
Perceived organic product price	175	1	5	2.527	5
Availability of product	175	1	5	3.131	3
Affordability of consumers	175	1	5	3.018	4
Prestige of consumers	175	1	5	3.842	1
Self interest of consumers	175	1	5	2.194	6
Eco – labels	175	1	5	3.422	2

The researcher developed six factors which related to price of the organic food products, which is showing in the above table. The respondents given first preference related to price is “Prestige of consumers” (3.842) followed by “Eco-labels” (3.422). Third preference given to “availability of products” (3.131). Fifth preference given to “Perceived organic product price” (2.527) and the sixth preference given to “Self interest of consumers” (2.194). It shows that the consumers do not think that the organic food products are high.

Table 4: Environmental Related factors influencing the organic food products

Factors	Number	Mini	Max	Mean	Rank
Environmental awareness	175	1	5	3.014	4
Environmental knowledge	175	1	5	3.085	3
Credibility of Advertising	175	1	5	2.567	5
Environmental safe	175	1	5	3.682	1
Government initiatives	175	1	5	2.255	6
Certification	175	1	5	3.288	2

The researcher developed six factors which influence the environmental related of organic food products. The respondents are given first preference to “Environmental safe” (3.682). Second preference are given to “Certification” (3.288) and followed by “Environmental knowledge” (3.085). The respondents are given least preference to “Government initiatives” (2.255). It means that the respondent are thinking about the organic food products availability and the benefits of the products, they do not think about the cultivation and government initiatives of the organic food products.

Table 5: Consumers related factors influencing the organic food products

Factors	Number	Mini	Max	Mean	Rank
Personal habits	175	1	5	3.682	2
Life styles	175	1	5	3.921	1
Value for money	175	1	5	2.842	3
Location of organic stores	175	1	5	2.076	4

The researcher was taken the forty major factors are come under consumer oriented. First rank given to “life styles” (3.921). The consumers are having different style in their behaviour and living methods. The respondents were given second rank to “personal habits” (3.682) and followed by the “value of money” (2.842) and finally the respondents given preference to “Location of organic stores” (2.076). It concludes that the life style of the respondents influence more about the organic food products consumer oriented.

Findings

1. Majority (38.29%) of the respondents are come under the age group of above 45 years.
2. Majority (56.00%) of the male members are only coming to shop to buy organic food products.
3. Majority of the employees are doing business or professions in the study area.
4. Majority (51.42%) of the respondent’s monthly income is above Rs. 40,000.
5. Majority (57.71%) of the respondents are joint family members in the study area.
6. Majority (56.00%) of the respondents are did post graduate degrees in the study area.
7. Product related: The respondents were given first rank to “Health conscious” (3.875) followed by “Nutrient contents” (3.681).
8. Price related: The respondents given first preference related to price is “Prestige of consumers” (3.842) followed by “Eco-labels” (3.422).
9. The respondents are given first preference to “Environmental safe” (3.682). Second preference are given to “Certification” (3.288) and followed by “Environmental knowledge” (3.085).
10. First rank given to “life styles” (3.921). The consumers are having different style in their behaviour and living methods.

Suggestions

The following are the suggestion given by the respondents which are given by the sample respondents and based on the researchers' study.

1. The organic products are high price in the market, the health awareness and issues are having all type of peoples, but the organic products price is high. The price should come to normal, then only all type of people will above to consume.
2. Our Government should take some necessary steps to encourage the farmers to go for organic products.
3. The population is influence the farmer to cultivate more products; they are in need of profits. The farmer should study the organic products requirement and products cultivation. They need plan to do the organic production; it will be profit to the farmers and meet the demand of the agricultural products.

Conclusion

The organic products are free from fertilizers. All income group level peoples are in need of organic products, but the price of organic products is high. They are unable to buy for regular consumption. The organic products are slow in cultivation but the output time is long than fertilizer products. Due to the population all the farmers are in need of speed of cultivation and more output to meet the demand. The organic seeds and cultivation process are less cost comparing fertilizer, the farmer should consider these things and come to organic production cultivation and the benefits should goes to the consumers.

Reference

1. Aini, M.S., Fakhru'l-Razi., A. Laily, P., & Jariah, M. (2003). Environmental concerns, knowledge and practices gap among Malaysian teachers. *International Journal of Sustainability in Higher Education*, Vol. 4 No. 4, pp. 305 – 313.
2. Eugene, F. D. C., & Regi, S. B. Advantages and Challenges of E-Commerce Customers and Businesses: In Indian Perspective. *International Journal of Research–Granthaalayah*, 4(3), 7-13.
3. Lea, E., & Worsley, T. (2005). Australians' organic food beliefs, demographics and values. *British Food Journal*, Vol.11 pp. 855-869.
4. Lockie, S., Lyons, K., Lawrence, G., & Mummery, K. (2002). Eating “green”: motivations behind organic food consumption in Australia. *Sociologia Ruralis*, Vol.42, No. 1, pp. 23-40.
5. Lockie, S., Lyons, K., Lawrence, G., & Mummery, K. (2002). Eating “green”: motivations behind organic food consumption in Australia. *Sociologia Ruralis*, Vol.42, No. 1, pp. 23-40.
6. M. Harris, Susan. (2007). Green Tick: an example of sustainability certification of goods and services. *Management of Environmental Quality: An International Journal*, Vol. 18 No. 2, pp. 167 – 178.
7. M. Harris, Susan. (2007). Green Tick: an example of sustainability certification of goods and services. *Management of Environmental Quality: An International Journal*, Vol. 18 No. 2, pp. 167 – 178.
8. Regi, S. B., & Golden, S. A. R. (2014). A Descriptive Study On The Role Of Consumer Psychology And Behaviour In Product Purchasing. *Indian Streams Research Journal*, 3(12), 1-6.

Primary Health Centres – A Boon to Rural Health Care

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Abstract

Globally, Governments are searching for ways to improve equity, efficiency, effectiveness and responsiveness of their health system. At present, there is no agreement on optimum structures, content and ways to deliver cost-effective services to achieve health gains for the population. However, in recent years, there has been an acceptance of the important role of primary healthcare in helping to achieve the aim of providing cost effective health care to the general population. Hence, in developing country like India, the primary health centre is the basic structural and functional unit of the public health services. Since improvement in the health status of the population has been one of the major thrust areas in social development of the country, each state is concentrating on health and family welfare. Tamilnadu is a pioneer state in primary health care. It is the responsibility of each state to concentrate on health care of rural community through proper coordination of PHCs functioning in each district. Hence the services of Primary Health Centres in Tirunelveli District” is chosen for the present study. The main objective of the study is to understand the satisfaction of the beneficiaries towards the services of PHCs and their future expectations on the services of PHCs. 125 respondents are selected from various PHCs in Tirunelveli District by convenience sampling method. The data are analyzed by applying simple percentage, F-test and Garrett’s ranking. Based on the findings of the study, suggestions are given to improve the satisfaction of the beneficiaries towards the services of Primary Health Centres. The Government of India can also achieve the goal of “Health for All” through the Primary Health Care Approach.

Key words: Service quality, tangibility, reliability, responsiveness, empathy, assurance.

Introduction

Globally, Governments are searching for ways to improve equity, efficiency, effectiveness and responsiveness of their health system. At present, there is no agreement on optimum structures, content and ways to deliver cost-effective services to achieve health gains for the population. However, in recent years, there has been an acceptance of the important role of primary healthcare in helping to achieve the aim of providing cost effective health care to the general population. Hence, in developing country like India, the primary health centre is the basic structural and functional unit of the public health services. Primary Health Centers (PHCs) are the cornerstone of rural healthcare; a first port of call for the sick and an effective referral system in addition to being the main focus of social and economic development of the community. It forms the first level of contact and a link between individuals and the national health system and bringing health care delivery as

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close as possible to where people live and work. Hence, the topic entitled, "Primary Health Centre – A Boon for Rural Health Care" is chosen for the present study.

Statement of the Problem

In the modern technologically advanced world, many sophisticated and well equipped hospitals are available. Even then, many rural people prefer primary health centres found nearby their locality. Hence it is true to say that even today, people believe in the mode of treatment given by the primary health centres. Since improvement in the health status of the population has been one of the major thrust areas in social development of the country, each state is concentrating on health and family welfare. Tamilnadu is a pioneer state in primary health care. It is the responsibility of each state to concentrate on health care of rural community through proper coordination of PHCs functioning in each district. Hence the services of Primary Health Centres in Tirunelveli District" is chosen for the present study.

Objectives of the Study

The objectives focused in the study are

- ❖ It forms the first level of contact and a link between individuals and the national health system and bringing health care delivery as close as possible to where people live and work.
- ❖ To understand the satisfaction of the beneficiaries (respondents) towards the services of PHCs through SERVQUAL model.
- ❖ To find out whether there is any significant relationship between the service quality dimensions of PHCs and the personal variables of the respondents.
- ❖ To examine the future expectations of the beneficiaries.

Methodology

The study is based on both primary and secondary data. The primary data are collected directly from the beneficiaries of PHCs with the help of interview schedule. Secondary data are collected from books, journals and from websites. 125 respondents are selected from various PHCs in Tirunelveli District by convenience sampling method. The data were analyzed by applying simple percentage, F-test and Garrett's ranking.

Data Analysis and Interpretation

A.PERSONAL PROFILE OF THE RESPONDENTS

- ❖ 54 per cent of the respondents are female.
- ❖ 40 per cent of the respondents are in the age group of 20-40 years.
- ❖ 66 per cent of the respondents are married.
- ❖ 40 per cent of the respondents have studied up to HSC.
- ❖ 32 per cent of the respondents are agriculturists.
- ❖ 81 per cent of the respondents are in nuclear family system.
- ❖ 36 per cent of the respondents are in the family size of 3-5 members.

B.FACTORS INFLUENCING PREFERENCE AS TO PHCs

There are many factors which influenced the people to prefer PHCs as compared to modern sophisticated hospitals. These factors are analyzed and shown in Table 1

Table 1: FACTORS INFLUENCING PREFERENCE AS TO PHCs

S. No	Factors	Ranks given by the respondents						Garrett's Rank	
		I	II	III	IV	V	VI	Mean score	Rank
1	Income level	14	14	25	19	35	18	47.14	IV
2	Proximity	17	23	15	37	18	15	50.24	III
3	First aid	36	28	17	17	20	7	57.09	I
4	Immunization	17	20	16	15	19	38	45.6	V
6	Free medical treatment	24	23	33	17	14	14	53.60	II
5	24 hours service	17	17	19	20	19	33	36.78	VI

Source: primary data

It is inferred from Table 1 that 'getting first aid' is the major influencing factor for many respondents. Hence it is placed in the first position. Second to sixth ranks are allotted to 'free medical treatment', 'proximity', 'income level' 'immunization' and '24 hours services' respectively. Hence it is concluded that getting immediate first aid is the dominating factor as to the preference of PHCs.

C. SATISFACTION OF THE RESPONDENTS TOWARDS THE SERVICES OF PHCs APPLICATION OF SERVQUAL MODEL

The satisfaction of the respondents towards the services of PHCs are analyzed with the help of SERVQUAL model. The services of PHCs are categorized into five service quality dimensions namely 'tangibility', 'reliability', 'responsiveness', 'assurance', and 'empathy'. Three statements are given for each service quality dimensions and Likert scaling technique is used to quantify these service quality dimensions. 5 points are given for "strongly agree", 4 for "agree", 3 for "no opinion", 2 for "disagree" and 1 for "strongly disagree" for the positive statements and vice versa.

The mean scores of the service quality dimensions are calculated and shown in Table 2.

Table 2: SERVICE QUALITY DIMENSIONS OF PHCs

Service Quality Dimensions	Mean Score
Tangibility	11.176
Reliability	8.656
Responsiveness	8.043
Assurance	10.632
Empathy	9.032

Source: primary data

The mean score of the service quality dimensions namely 'Reliability' and 'Responsiveness' are less than the neutral point 9 (3×3). Hence there is a significant difference in their satisfaction as to the service quality dimensions 'Reliability' and 'Responsiveness'. The other service quality dimensions namely 'Tangibility', 'Empathy' and 'Assurance' are slightly more than neutral point. Even though the respondents are satisfied with these three service quality dimensions, the significant association between the service quality dimensions and the personal variables of the respondents are also tested with the help 'F test'.

D. REALATIONSHIP BETWEEN SERVICE QUALITY DIMENSIONS OF PHCs AND PERSONAL VARIABLES OF THE RESPONDENTS

‘F’ test is used to analyze the relationship between each service quality dimensions and the personal variables of the respondents namely gender, age, marital status, educational level, occupation, type of family and the size of family. The hypothesis framed to test the relationship between the service quality dimensions and the personal variables of the respondents is: “Service quality dimensions ‘Tangibility’, ‘Reliability’, ‘Responsiveness’, ‘Assurance’ and ‘Empathy’ are independent of the personal variables of the respondents”.

The results of F test are given in Table 3

Table 3: RELATIONSHIP BETWEEN SERVICE QUALITY DIMENSIONS AND THE PERSONAL VARIABLES OF THE RESPONDENTS

Personal variables	Tangibility			Reliability			Responsiveness			Assurance			Empathy		
	CV	TV	IN	CV	TV	IN	CV	TV	IN	CV	TV	IN	CV	TV	IN
Gender	85.1 7	7.7 1	S	1.04	7.7 1	N S	93.0	7.7 1	S	1.27	7.7 1	N S	2.04	7.7 1	N S
Age	140. 9	3.5 8	S	45.0 8	3.5 9	S	7.38	3.5 9	S	4.27	3.5 9	S	16.7 3	3.5 9	S
Marital status	3.49	7.7 1	N S	7.28	7.7 1	N S	152. 2	7.7 1	S	66.7 0	7.7 1	S	81.1 6	7.7 1	S
Educatio n	7.54	3.1 8	S	7.54	3.1 8	S	4.93	3.1 8	S	2.64	3.1 8	N S	4.19	3.1 8	S
occupatio n	5.81	3.1 8	S	51.4 7	3.1 8	S	4.89	3.1 8	S	3.76	3.1 8	S	1.38	7.7 1	N S
Type of family	0.41	7.7 1	N S	28.2 2	7.7 1	S	2.95	7.7 1	N S	6.30	7.7 1	N S	2.52	4.7 4	N S
Size of family	12.4 7	4.7 4	S	53.6 3	4.7 3	S	116. 4	4.7 4	S	1.92	4.7 4	N S	9.49	4.7 4	S

[CV – Calculated value TV – Table value IN – Inference S – Significant
NS – Not Significant]

- **Tangibility:** The service quality dimension ‘tangibility’ is dependent on gender, age, education level, occupation and size of family and independent of marital status and type of family of the respondents.
- **Reliability:** The service quality dimension ‘Reliability’ is dependent on age, education level, occupation, and type of family and size of family and independent of gender and marital status of the respondents.
- **Responsiveness:** The service quality dimension ‘responsiveness’ is dependent on gender, age, marital status, education level, occupation and size of family and independent of type of family of the respondents.
- **Assurance:** The service quality dimension ‘assurance’ is dependent on age, occupation, and marital status and independent of gender, education level, type of family and size of family of the respondents.
- **Empathy:** The service quality dimension ‘Empathy’ is dependent on age, marital status, education level and size of family and independent of gender, occupation and type of family of the respondents.

E. Future Expectations

The respondents are very eager to avail the required additional facilities in their primary health centres. So their future expectations in making their PHCs as a successful rural health care centre are analyzed and shown in Table 4.

Table 4: FUTURE EXPECTATIONS

S.No	Expectations	No. of. Respondents	Percentage
1	Prompt medical care	27	22
2	Frequent specialist visit	30	24
3	Trained staff	12	10
4	Improvement in infrastructure	28	22
5	Better hospitalization	17	13
6	Enhanced medical equipments	11	9
Total		125	100

Source: Primary data

24 per cent of the respondents expressed their expectation that there should be frequent visit by the specialists, 22 per cent of the respondents expressed their feelings that medical care should be more prompt and the infrastructure should also be improved. 13 per cent of the respondents stated that for the inpatients, hospitalization methods should be improved. 10 per cent of the respondents felt that some sort of additional training should be given to laboratory technician and other staff. 9 percentage of the respondents told that PHCs should be equipped with medical impediments necessary for emergency cases.

Suggestions

Following suggestions are given to improve services of PHCs

- ❖ Primary Health Centres need to improve in the areas of hospitalization, keep up hygienic environment in the premises, environment satisfaction and precautionary measures for diseases.
- ❖ With regard to Ante natal services, Primary Health Centre must have obstetricians and Gynecologists.
- ❖ PHCs should be equipped with latest medical equipments.
- ❖ Proper provision should be made for doctors and staff to stay in PHCs throughout the working hours so that they need not run to their home towns early.
- ❖ All type of medicines at free of cost should be supplied all times so as to make the economically poor rural community to be benefited from PHCs.
- ❖ Frequent medical camps should be arranged by PHCs so as to create awareness about incurable diseases among the rural public.
- ❖ Service quality dimension "Accessibility" should be ensured by the timely availability of human resources even for emergencies during night.

Conclusion

The Primary Health Centre is the basis of the Rural Medical Care System in India. Many people prefer Primary Health Centre only for minor ailments. With the development of health care technologies, every Primary Health Centre may be equipped with latest medical equipments. The specialists like Obstetricians and Gynecologists may also be appointed. Hence, the poor rural community can utilize the services not only for minor ailments but also for incurable diseases at free of cost. By this, the Government of India can also achieve the goal of "Health For All" through the Primary Health Care Approach.

Bibliography

1. Singh, D.R, Prof. Sunaina (2005), Management of Health Care Service Sector. A Study of Primary Health Centres, Indian Journal of Marketing, Vol.35, No.3.
2. Sharma R.D and Hardeep Chahal (1995), Patient satisfaction in Public Health System Journal of Health Social work, No. 61(4).
3. World Health Organization. The world health report 2000. Health Systems: Improving Performance. Geneva.
4. Garg ML et al. Physician specialty, quality and cost of inpatient care. *Social science and medicine*, 1979, 13 C: 187-190.
5. NRHM Report (2014-15): Budget Briefs, 6(5), New Delhi, Accountability Initiative, (excerpedfromhttp://www.climatefinancedevelopmenteffectiveness.org/archive/documents/Budget_brief_the_National_Rural_Health_Mission_%28NRHM%29.pdf).

Webibliography

- <http://www.pubmedcentral.nh.gov>
- http://www.euro.who.int/__data/assets/pdf_file/0004/74704/e82997.pdf
- <https://www.mja.com.au/journal/2003/178/1/health-all-beyond-2000-demise-alma-ata-declaration-and-primary-health-care>
- <http://www.expressbpd.com/healthcare/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/pmc2573981/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5588212/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4581145/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5588212/>
- <http://www.euro.who.int/file/0009/113877/E93944.pdf-alma-ata>
- <https://www.topmastersinhealthcare.com/30-most-technologically-advanced-hospitals-in-the-world/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4450689/>
- <http://planningcommission.nic.in/plans/planrel/fiveyr/9th/vol2/v2c3-4.htm>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5112973/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5014747/>
- <https://www.omicsonline.org/open-access/analysis-of-healthcare-services-quality-using-servqual--fuzzy-method-2162-6359-1000485-98769.html>
- <https://www.omicsonline.org/open-access/analysis-of-healthcare-services-quality-using-servqual--fuzzy-method-2162-6359-1000485-98769.html>
- <https://assets.aarp.org/rgcenter/.../social-security-assessing-knowledge-of-benefits.pdf>
- http://shodhganga.inflibnet.ac.in/bitstream/10603/25834/11/11_chapter%202.pdf
- http://www.who.int/social_determinants/tools/multimedia/alma_ata/en/
- http://shodhganga.inflibnet.ac.in/bitstream/10603/8372/8/08_chapter%20%205.pdf
- <http://www.serviceperformance.com/the-5-service-dimensions-all-customers-care-about/>
- <http://shodhganga.inflibnet.ac.in/bitstream/10603/37525/5/c3.pdf>
- https://www.researchgate.net/post/How_can_I_create_a_binary_variable_from_a_5-Likert_scale_questionnaire
- <https://www.thehindu.com/opinion/op-ed/capacity-building-for-primary-health-care/article22486460.ece>
- <http://www.serviceperformance.com/the-5-service-dimensions-all-customers-care-about/>

- http://shodhganga.inflibnet.ac.in/bitstream/10603/79233/1/phd_thesis_softcopy_201002214.pdf
- http://shodhganga.inflibnet.ac.in/bitstream/10603/.../phd_thesis_softcopy_201002214.pdf
- https://mohfw.gov.in/sites/default/files/7660257301436254417_0.pdf
- <http://moph.gov.af/Content/Media/Documents/Anti-Natal-Care29122010164552313.pdf>
- <http://apps.who.int/medicinedocs/documents/s20282en/s20282en.pdf>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4248476/>
- http://www.euro.who.int/__data/assets/pdf_file/0004/74704/E82997.pdf
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3732361/>
- <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-017-2112-8>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4133079/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3400322/>

Advertising Effectiveness on Fairness Cream - A Study With Reference To Cuddalore Town

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Abstract

According to a recently published report of Bona fide Research "India Fairness Cream & Bleach Market Outlook, 2023", men's fairness cream market is anticipated to grow with a CAGR of 6-8% during the forecast period of 2018-2023. Factors such as increasing disposable income, the influence of Bollywood stars and cricketers on the young generation, western life culture have robustly increased the men's fairness cream market in past some years. For generations, companies have been selling fair skin to young Indian women, promising better marriage and employment prospects. However, over the last few years, men have become a favored target audience. Over the years, men have begun to accept that basic skin care and even make-up is a daily routine to keep the skin healthy and flawless. Moreover, rivalry among the workforce too has upscale the drive to look young and has prompted expanded interest for items particular to men. Seeing demand from men's side, players like Emami, Hindustan Unilever and L'Oreal jumped into the marketing of men's fairness creams. The research paper deals with the study of advertising effectiveness on fairness cream in Cuddalore town.

Keywords: Advertising effectiveness, Fairness Cream,

Introduction

Marketing is a subject of study, is now attracting attention from business firms, companies, institutions, and even countries. Any economy developed or developing is a market-oriented economy. Industry today involves the production of countless items for profitable sale rather than self-consumption. The marketing system constitutes the very foundation for pushing the production. Production and marketing are the two pillars of any economic systems, Industrial world on one hand and the consumer world on the other. They are connected by this powerful belt of marketing. Marketing is the process of identifying consumer needs and wants, based on their needs the company manufacturing the products. In this case, the marketing communication plays a vital role in fulfilling the gap between producers and consumers. Effective marketing communication leads to the success of the business, among the various techniques of marketing communication advertising takes first place always. If the advertising of the company is effective then the results lead to more increase in sales, reputation, and huge profit meeting competition and also act as a reminder.

Nowadays healthcare industries have wide scope in FMCG's market. Because irrespective of the demographic factors (Gender, Age, Income& Educational status) consumers have more awareness about the healthcare products like diet foods, Ayurvedic products, fairness creams, hair oil etc. This study deals with the advertising effectiveness with reference to fairness cream in Cuddalore town.

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Review of Literature and Conceptual Analysis

According to a recently published report of Bonafide Research "India Fairness Cream & Bleach Market Outlook, 2023", men's fairness cream market is anticipated to grow with a CAGR of 6-8% during the forecast period of 2018-2023. Factors such as increasing disposable income, the influence of Bollywood stars and cricketers on the young generation, western life culture have robustly increased the men's fairness cream market in past some years. For generations, companies have been selling fair skin to young Indian women, promising better marriage and employment prospects. However, over the last few years, men have become a favored target audience. Over the years, men have begun to accept that basic skin care and even make-up is a daily routine to keep the skin healthy and flawless. Moreover, rivalry among the workforce too has upscale the drive to look young and has prompted expanded interest for items particular to men. Seeing demand from men's side, players like Emami, Hindustan Unilever, L'Oreal jumped into the marketing of men's fairness creams.

The consumption of cosmetic products by Indian men has witnessed an upward trend in recent years primarily due to shifting perceptions about the usage of cosmetic products along with its feel-good factor. Changing lifestyle, rising income levels, and exposure of media are other discerning causes for its skyward spiral. As per the report findings, more than 80% of the surveyed male consumers were found using fairness creams. Fairness cream has been in the market since 1978 and have a significant market share in India fallout of a colonial memory or 'snow white syndrome'. That constructs 'White' or fair skin as a superior. Traditional ideas of beauty in India have largely been inclined toward fairness. The male grooming industry is expected to grow at a CAGR of 45 percent to touch Rs 35,000 crore in next three years, due to rising aspiration among men to look better and rapid urbanization, says an ASSOCHAM report. The male grooming industry currently stands at Rs 16,800 crore in India, the report said, adding that the market grew over 45 percent in the last five years on the back of increasing per capita income and urbanization. Interestingly, men in the age group of 25 to 45 outpace women in spending more money on grooming and personal care products, the survey noted.

Advertising targets for women have historically constructed fairness as a qualification for approval in the marriage market and more recently to win well-paying job contracts. The politics of color has naturally extended to advertisements for a fairness cream for men. The advertisement does not simply create awareness about products; it also signifies dominant ideas about social norms and culture. Fairness creams in our country have gained a lot of popularity over the past decade because of the growing awareness amongst girls and ladies regarding a fair, brighter complexion. Here is a list of the leading fairness cream in India which is highly preferred by common for achieving a spotless and beautiful complexion.

Fair & Lovely – Fair and lovely is the most popular fairness cream in India produced by HLL. It is widely chosen by women for a younger, brighter complexion. It has a number of variants like anti marks, skin clarity, and multivitamin, active sunblock, ayurvedic balance and even a fairness cream for men known as Fair and Lovely Menz Active.

Garnier Light – Garnier is a mass market cosmetics brand of L'Oreal that produces hair care and skin care products. Much like other brands from L'Oreal, it is sold in several markets around the world. **Olay Natural White**-Olay Natural White Cream produced by Procter & Gamble. It nourishes skin from deep inside, 2X whitening effect; it gives intense moisturizing and reveals skin health and radiance. **Pond's White Beauty** – Enriched with

detoxifying vitamins, White Beauty is not only popular for whitening the skin, but to neutralize the effect of darkness causing elements in today's harsh environment. It is the brand's commitment to providing superior face care solutions to Indian women by HUL's product. Fair ever – It feels more beautiful than ever, with new fair ever! Fair ever is manufactured and marketed by Cavincare Pvt. Ltd. Vivel – Vivel Active Fair, the complete fairness cream by ITC, is a result of intensive Research and Development efforts over the last three years to create a unique value proposition and a superior fairness cream for Indian consumers. Vivel Active Fair is manufactured by ITC Ltd. Vicco – VICCO has combined the goodness of turmeric and sandalwood oil which is supposed to be the most cooling element in Vicco Turmeric Cream. It is produced by VICCO Lab.

Advertising effectiveness refers to the managerial exercise aimed at relating to advertising results like sales, message reach, acceptance of the new product, profit maximization etc., Advertising effectiveness measured through advertising research. Advertising research has two parts one is media research another one is message research. Media research refers to identifying and choosing the best medium of the advertisement message research refers to find out the impact of advertising (ie) how they perceive the advertising message and then react. Message research can be tested in two ways like pre-test and post-test.

Pre-test refers to the test of an advertising message before releasing the advertisement. It can be analyzed in Verbal response, Physiological response and Behavioral response. Post-test refers to the test of an advertising message after releasing the advertisement, the most common techniques are Recognition test, Recall test and Triple association test.

Recognition test: Measures the incidence and intensity of reading an advertisement, normally involves an interview with 100 to 150 qualified readers of a given issue of a magazine or periodical that carried the advertising specific questions are then asked, they remembered the advertisement and its content.

Recall test: In this method the researcher shown the advertisement in advance after that asked the questions about the advertisement.

Triple association test: Under this triple association test, to find out the respondents abilities to associate the product category, the brand, and the copied theme. Two of these three are read or shown to a respondent who is asked to mention the third.

For this study purpose, the researcher has chosen triple association technique for analyzing advertising effectiveness of fairness cream. The interviewer shown the slogan and pictures of the particular brand separately asked them to recognize the brand name, the slogans, and pictures shown in Annexure. The advertising impact will be easily measured by recognized the product. Hence the researcher has selected this method. For this analysis, the researcher used percentage analysis. Selected brand names are Fair & Lovely, Fairever, Olay, Ponds, Garnier, Vicco and Vivel.

Objectives

- 1 To study on advertising effectiveness towards fairness cream in Cuddalore town.
- 2 To find out the effective media for fairness cream advertisement.
- 3 To assess whether advertising is influencing the brand preference of fairness cream.
- 4 To analyze the reason for using fairness cream.

Methodology

- 1 A Research design is purely and simply the framework or plan for a study that guides the collection and analysis of data. This project is based on a descriptive research design.

- 2 This study is based on primary and secondary data. An interview schedule was administered the respondents for collecting the primary data. The secondary data were collected from books, web pages and journals.
- 3 The sampling frame consists of 100 consumers from Cuddalore. Sampling units were college students and homemakers.
- 4 Data analyzing is carried out through statistical tools which include percentage analysis and advertising effectiveness test (consists only post-test method).

Analysis and discussion

Table-1: Fairness cream users of the respondents

S.No	Category	No of respondents	Percentage
1	User	90	90
2	Nonuser	10	10
	Total	100	100

Source: Computed from primary data

The above table shows that the majority of 90% of the respondents using fairness cream.

Table-2: Brand preference of the respondents

S.No	Brand Name	No of respondents	Percentage
1	Fair & Lovely	37	41.11
2	Ponds	15	16.66
3	Olay	12	13.33
4	Fairever	9	10.00
5	Vivel	8	8.88
6	Vicco	4	4.44
7	Banjaras	3	3.33
8	Garnier	2	2.22
	Total	90	100

Source: Computed from primary data

Table-2 explained that 41.11% of the respondents prefer fair & lovely, 16.66% of the respondents preferred ponds and 13.33% of the respondents prefer Olay.

Table-3: Influencing factors of buying fairness cream

S.No	Factors	No of respondents	Percentage
1	Advertisement	50	55.55
2	Family members	15	16.66
3	Friends	13	14.44
4	Doctor recommendation	12	13.33
	Total	90	100

Source: Computed from primary data

Table 3 reveals that 55.55% of the respondents influenced by advertisement, 16.66% of the respondents influenced by family members, 14.44% of the respondents influenced by friends and 13.33% of the respondents influenced by a doctor.

Table-4: Reasons for using the fairness cream

S.No	Factors	No of respondents	Percentage
1	Skin glowing or skin wrinkling	40	44.44
2	Reducing black marks	30	33.33
3	Beauty	12	13.33
4	Avoid a pimple	08	8.88
	Total	90	100

Source: Computed from primary data

It is evident from table 4 that 44.44% of the respondents using the fairness cream for skin glowing. 33.33% of the respondents using for reducing black mark circles and next 13.33% for beauty perspective.

Table-5: Effective media for fairness cream advertisement

S.No	Factors	No of respondents	Percentage
1	Television	70	70.00
2	Magazine	15	15.00
3	Newspaper	5	5.00
4	Bill	-	0.00
5	Direct Marketing	-	0.00
6	Online Marketing	-	0.00
	Total	100	100

Source: Computed from primary data

It is seen in the above table 70% of the respondents opinioned that television media is the effective media for advertising, 15% percent of them opinioned the magazine is the best media and the rest of them preferred newspaper. It is noticed that no one preferred billboards, direct marketing, and online marketing.

Table-6: Various brands of fairness cream Advertisement

S.No	Brand Name	No of respondents	Percentage
1	Fairever	30	30
2	Fair & Lovely	20	20
3	Garnier	15	15
4	Ponds	13	13
5	Olay	10	10
6	Banjaras	05	05
7	Vicco	04	04
8	Vivel	03	03
	Total	100	100

Source: Computed from primary data

It is seen in the above table 30% of the respondents attracted by Fairever advertisement, 20% of the respondents attracted by Fair & lovely and 15% of the respondents attracted by Garnier.

Triple Association Test

S.No	Brand Name	Slogan Identification	Picture Identification
1	Fair & Lovely	80	65
2	Fairever	64	45
3	Olay	52	48
4	Ponds	68	52
5	Vicco	45	40
6	Fair & Lovely for Men	53	35
7	Garnier	58	50
8	Vivel	60	46

Source: Computed from primary data

From the above table among the 100 respondents 80% of them identified Fair & Lovely slogan rest of them are not identified, Ponds brand were identified by 68%, Fairever were identified by 64% of the respondents, Vivel brand was identified by 60% of the respondents, Garnier brand was identified by 58% of the respondents, Olay brand was identified by 52% of the respondents, Fair & Lovely for Men brand were identified by 53% of the respondents and Vicco brand were identified by 45% of the respondents.

For picture identification 65% of Fair & Lovely brand picture have been identified by the respondents, 52% which followed by Ponds then 50% which followed by Garnier, rest of the picture identification percentage have been shown in the above table.

Findings

- Majority of the respondents 90% using fairness cream, 44.44% for Skin glowing and 33.33% of usage for reducing black marks.
- Brand preference of the respondents Fair & Lovely took the top of 41.11% and then Ponds of 16.66%
- Most of the respondents influenced the usage of fairness cream by Television advertisement.
- Irrespective of the users and nonusers both of the category seen the fairness cream advertisement, they were attracted by Fairever advertisement of 30% and is followed by fair & lovely 20 %, Garnier 15% then Ponds 13%.
- Majority of the respondents opinioned that Television is an effective medium for fairness cream advertisement.
- Findings through Triple Association test, most of the respondents were well known about the fair & lovely slogan and picture then ponds.

Conclusion

The final conclusion is that advertising is the multidimensional and a powerful mass communication media that influenced fairness cream users. Message, Music, Celebrity and Attractive colors of the advertisement play a dominant role in the advertising effectiveness that recognized by the potential consumers. In South India peoples are lagging on online marketing, nowadays we could see a significant growth in online transaction as well as marketing. Colors of the brands are more or less same. so the people are getting confused with colors to recognize the product.

References

- 1 Arun Mittal, "Advertising and Sales Promotion", Wisdom Publication, New Delhi 2008.
- 2 Karthikeyan & Radha," Marketing", 5th edition, Prasanna & Co, Chennai, 2007.
- 3 Philip Kotter & Gary Armstrong," Principles of Marketing", 8th edition, Prentice hall of India Private Limited, New Delhi, 1999.
- 4 Pillai. P.S.N & Bagavathi." Modern Marketing Principles and Practices", 2nd edition, S.Chand & Company Limited, New Delhi, 2000.
- 5 Assir, S. 'Serene Assir gauges ideas of female beauty in modern-day Cairo.' Al-Ahram Weekly Online, <http://weekly.ahram.org.eg/2005/749/li1.htm>. 2005.
- 6 Balu, R. 'Strategic innovation: Hindustan Lever Ltd'. Fast Company, 2001.
- 7 BC News. 'India debates 'racist' skin cream ads.' BBC News, 24 July 2003.
- 8 Islam, K.S., H.S. Ahmed, E. Karim, and A.M. Amin. 'Fair Factor.' Star Weekend Magazine, 12 May 2006.
- 9 Leistikow, N. 'Indian women criticize 'Fair & Lovely' ideal.' Women's eNews, 28 April 2003.
- 10 Luce, E. and K. Merchant. 'India orders ban on advert saying fairer equals better for women.' Financial Times, 20 March 2003.
- 11 Prystay, C. 'Critics say ads for skin whiteners capitalize on Malaysian prejudice.' Wall Street Journal, 30 April 2002.
- 12 Sinha, S. 'Fair & Growing.' India Today, 4 December 2000.
- 13 Srisha, D. "Fairness Wars." ICFAI Center for Management Research, Hyderabad, 2001.
- 14 The Economic Times. 'Ban for the buck.' The Economic Times, 2 April 2003. Time. 'Selling to the Poor.' Time, 17 April 2005.
- 15 www.Viccolab.com
- 16 www.fair&lovely.com
- 17 www.olay.com
- 18 www.cavincare.com
- 19 www.marketresearchreport.in
- 20 <http://business.today.in>
- 21 <http://amrita.academia.edu>

Vulnerable Natural Disasters and Their Preparedness

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Abstract

A natural disaster is a major event caused by the natural processes of the Earth including extreme weather. Examples include floods, hurricanes, tornadoes, volcanic eruptions, earthquakes, tsunamis, and other geologic processes. This paper deals with vulnerable natural disaster and their preparedness. It outlines the vulnerable disaster events and level of natural disaster preparedness. The vulnerable level of natural disaster and level of preparedness are measured on the basis of chosen indicators and such qualitative indicators are quantified with the help of 5 point rating scale. This paper concludes with some interesting findings.

Key words: *natural disaster, vulnerability, disaster prevention, disaster preparedness*

Introduction

Natural disasters in India, many of them related to the climate of India, cause massive losses of life and property. Droughts, flash floods, cyclones, avalanches, landslides brought on by torrential rains, and snowstorms pose the greatest threats. A natural disaster might be caused by earthquakes, flooding, volcanic eruption, landslides, hurricanes etc. In order to be classified as a disaster it will have profound environmental effect and human loss and frequently incurs financial loss. Other dangers include frequent summer dust storms, which usually track from north to south; they cause extensive property damage in North India and deposit large amounts of dust from arid regions. Hail is also common in parts of India, causing severe damage to standing crops such as rice and wheat and many more crops.

Landslides are very common indeed in the Lower Himalayas. The young age of the region's hills result in labile rock formations, which are susceptible to slippages. Rising population and development pressures, particularly from logging and tourism, cause deforestation. The result is denuded hillsides which exacerbate the severity of landslides; since tree cover impedes the downhill flow of water. Parts of the Western Ghats also suffer from low-intensity landslides. Avalanches occurrences are common in Kashmir, Himachal Pradesh, and Sikkim.

Floods are the most common natural disaster in India. The heavy southwest monsoon rains cause the Brahmaputra and other rivers to distend their banks, often flooding surrounding areas. Though they provide rice paddy farmers with a largely dependable source of natural irrigation and fertilisation, the floods can kill thousands and displace millions. Excess, erratic, or untimely monsoon rainfall may also wash away or otherwise ruin crops. Almost all of India is flood-prone, and extreme precipitation events, such as flash floods and torrential rains, have become increasingly common in central India over the past several decades, coinciding with rising temperatures. Meanwhile, the annual precipitation totals have shown a gradual decline, due to a weakening monsoon circulation as a result of the rapid warming in the Indian Ocean and a reduced land-sea temperature difference. This

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means that there are more extreme rainfall events intermittent with longer dry spells over central India in the recent decades.

Intertropical Convergence Zone, may affect thousands of Indians living in the coastal regions. Tropical cyclogenesis is particularly common in the northern reaches of the Indian Ocean in and around the Bay of Bengal. Cyclones bring with them heavy rains, storm surges, and winds that often cut affected areas off from relief and supplies. In the North Indian Ocean Basin, the cyclone season runs from April to December, with peak activity between May and November.[8] Each year, an average of eight storms with sustained wind speeds greater than 63 kilometres per hour (39 mph) form; of these, two strengthen into true tropical cyclones, which have sustained gusts greater than 117 kilometres per hour (73 mph). On average, a major (Category 3 or higher) cyclone develops every other year.

Natural Disaster Preparedness

Planning - Preparing for natural disasters can greatly reduce the risks to health and the environment. Hurricanes or floods can contaminate drinking water sources. Forest fires or volcanoes harm air quality. Tornadoes or earthquakes, by damaging factories or storage facilities, can release contaminants where people live or into the environment.

Disasters affect millions of people each year on a personal, business, local community or national level. The golden rule for successful disaster management at all levels is to increase awareness, develop actions plans and practice them. Waiting for a disaster to take place is not the right time to plan. Communicating and building relationships with those around PEOPLE, whether they contribute actively to the plan or are dependent on it, will have the most significant and positive affect in determining your resiliency throughout an event. Below are 10 actions to keep in mind when planning to mitigate disaster and resources to help prepare.

Methods and materials

This study deals with coastal people rating on vulnerability level of natural disasters and their preparedness. This study has been conducted in the coastal areas of Nagapattinam district. In this study 300 households are selected as sample under stratified random sampling method representing various occupational groups. The collected data are classified and tabulated with the help of computer programming. Cross tabulation has been made by putting independent variables and dependent variables. The collected qualitative dependent variables are quantified with the help of five point rating scale. The data analysis has been carried out with the help of mean, ANOVA two way and t test.

Vulnerable Disaster Events

This section deals with respondents' rating on vulnerable disaster events. It can be assessed with the help of 17 factors on a 5 point rating scale. These include extreme heat waves, droughts, wildfires, extreme thunderstorms; windstorms, hail, extreme snowstorms, extreme cold waves, floods, sudden unexpected flooding in the form of flash flood, inland excess water in the form of higher than normal groundwater level, landslides in the form of mudflows and shallow landslides, tsunami, coastal erosion, earthquakes, sinkholes, volcanic eruptions and limnic eruptions.

Table 1 Occupation Wise Respondents Ranking Vulnerable Disaster Events

Variables	Government employee	Private employee	Professionals	Business	Mean
Extreme heat waves	2.30	2.80	2.58	3.08	2.69
Droughts	2.54	3.04	2.82	3.32	2.93
Wildfires	3.10	3.60	3.38	3.88	3.49
Extreme thunderstorms; windstorms	1.61	2.01	1.79	2.19	1.90
Hail	2.82	3.32	3.10	3.60	3.21
Extreme snowstorms	2.98	3.48	3.26	3.76	3.37
Extreme cold waves	3.23	3.73	3.51	4.01	3.62
Floods	2.19	2.69	2.47	2.97	2.58
Sudden unexpected flooding in the form of flash flood	3.39	3.89	3.67	4.17	3.78
Inland excess water in the form of higher than normal groundwater level	1.89	2.39	2.17	2.67	2.28
Landslides in the form of mudflows, shallow landslides etc	2.37	2.87	2.65	3.15	2.76
Tsunami	3.86	4.24	4.04	4.26	4.15
Coastal erosion	1.72	2.22	2.00	2.50	2.11
Earthquakes	3.65	4.05	3.83	4.13	3.94
Sinkholes	3.73	4.13	3.91	4.21	4.02
Volcanic eruptions	2.08	2.58	2.36	2.86	2.47
Limnic eruptions	2.63	3.13	2.91	3.41	3.02
Average	2.71	3.19	2.97	3.42	3.08

Source: Computed from primary data

ANOVA

Source of Variation	SS	df	MS	F	F crit
Variation due to vulnerability disaster events	30.00159	16	1.875099	596.3368	1.859167
Variation due to occupational status	4.700871	3	1.566957	498.3385	2.798061
Error	0.150929	48	0.003144		
Total	34.85339	67			

Data presented in table 1 indicate the area wise respondents' ranking on vulnerable disaster events. It could be noted that out of the 17 vulnerable disaster events, the respondents rank the occurrence of tsunami as their first level vulnerable disaster event and it is evident from their secured a mean score of 4.15 on a 5 point rating scale. Occurrence of sinkholes is rated at second level vulnerable disaster event and it is estimated from the respondents' secured a mean score of 4.02 a 5 point rating scale. The respondents visualize the vulnerable disaster event by citing the fact that occurrence of earthquakes as their third

level observed event. It is evident from their secured a mean score of 3.94 on a 5 point rating scale. The respondents rank the fourth level vulnerable disaster episode citing the event that sudden unexpected flooding in the form of flash flood and it is observed from the respondents' secured a mean score of 3.78 on a 5 point rating scale. Occurrence of extreme cold waves is rated at fifth level vulnerable disaster event and it could be known from the respondents' secured a mean score of 3.62 on a 5 point rating scale.

The respondents' rate the occurrence of wildfires as their realized sixth level vulnerable disaster event and it is revealed from their secured a mean score of 3.49 on a 5 point rating scale. Extreme snowstorms is rated at seventh vulnerable disaster event and it observed from the respondents' secured a mean score of 3.37 on a 5 point rating scale. The respondents observe the disaster event in the form of hail and it is their eighth level vulnerable event. It is evident from their secured a mean score of 3.21 on a 5 point rating scale. The respondents realize the ninth level vulnerable disaster event by citing the event that occurrence of limnic eruptions as per their secured a mean score of 3.02 on a 5 point rating scale. Drought is rated at tenth level vulnerable disaster event and it is evident from the respondents' secured a mean score of 2.93 on a 5 point rating scale.

The respondents rate the landslides in the form of mudflows, shallow and landslides as their ranked eleventh level vulnerable disaster event and it could be known from their secured a mean score of 2.76 on a 5 point rating scale. Extreme heat wave is rated at twelfth level vulnerable disaster event and it is reflected from the respondents' secured a mean score of 2.69 on a 5 point rating scale. The respondents observe the thirteenth level vulnerable disaster event by citing the event that occurrence of floods. It is evident from their secured a mean score of 2.58 on a 5 point rating scale. The respondents observe the fourteenth level vulnerable disaster event by citing the event that occurrence of volcanic eruptions and it is clear from their secured a mean score of 2.47 on a 5 point rating scale. Inland excess water in the form of higher than normal groundwater level is rated at fifteenth level observed vulnerable disaster event as per the respondents' secured a mean score of 2.28 on a 5 point rating scale. The respondents observe the sixteenth level vulnerable disaster event by citing the scenario that the occurrence of coastal erosion and it is clear from their secured a mean score of 2.11 on a 5 point rating scale. Extreme thunderstorms and windstorms is rated at seventeenth level ranked vulnerable disaster event and it is evident from the secured a mean score of 1.90 on a 5 point rating scale.

The business group respondents rank the first position in their overall rated vulnerable disaster events and it is evident from their secured a mean score of 3.42 on a 5 point rating scale. The professional group respondents record the second position in their overall reported vulnerable disaster events and it is evident from their secured a mean score of 3.19 on a 5 point rating scale. The private employee group respondents register the third position in their overall ranked vulnerable disaster events and it is evident from their secured a mean score of 2.97 on a 5 point rating scale. The government employee group respondents come down to the last position in their overall ranked vulnerable disaster events and it is evident from their secured a mean score of 2.71 on a 5 point rating scale.

The anova two way model is applied for further discussion. The computed anova value 596.33 is greater than its tabulated value at 5 percent level significance. Hence, the variation among the overall ranked vulnerable disaster events is statistically identified as significant. In another point, the computed anova value 498.33 is greater than its tabulated value at 5 percent level significance. Hence, the variation among the occupational groups

is statistically identified as significant as per the respondents rating on vulnerable disaster events.

Table 2 Education Wise Respondents Ranking on Vulnerable Disaster Events

Variables	Secondary	Higher secondary	Under graduate	Post graduate	Mean
Extreme heat waves	3.22	2.88	2.50	2.16	2.69
Droughts	3.46	3.12	2.74	2.40	2.93
Wildfires	4.02	3.68	3.30	2.96	3.49
Extreme thunderstorms; windstorms	2.23	2.00	1.71	1.66	1.90
Hail	3.74	3.40	3.02	2.68	3.21
Extreme snowstorms	3.90	3.56	3.18	2.84	3.37
Extreme cold waves	4.15	3.81	3.43	3.09	3.62
Floods	3.11	2.77	2.39	2.05	2.58
Sudden unexpected flooding in the form of flash flood	4.21	3.97	3.59	3.35	3.78
Inland excess water in the form of higher than normal groundwater level	2.81	2.47	2.09	1.75	2.28
Landslides in the form of mudflows, shallow landslides etc	3.29	2.95	2.57	2.23	2.76
Tsunami	4.28	4.24	4.06	4.02	4.15
Coastal erosion	2.44	2.30	1.92	1.78	2.11
Earthquakes	4.17	4.13	3.85	3.61	3.94
Sinkholes	4.25	4.21	3.93	3.69	4.02
Volcanic eruptions	3.00	2.56	2.28	2.04	2.47
Limnic eruptions	3.55	3.21	2.83	2.49	3.02
Average	3.52	3.25	2.91	2.64	3.08

Source: Computed from primary data

ANOVA

Source of Variation	SS	df	MS	F	F crit
Variation due to vulnerability disaster events	30.77882	16	1.923676	154.148	1.859167
Variation due to educational status	7.657588	3	2.552529	204.5392	2.798061
Error	0.599012	48	0.012479		
Total	39.03542	67			

Table 2 presents data on the education wise respondents' rating on vulnerable disaster events. The secondary level educated respondents rank the first position in their overall ranked vulnerable disaster events and it is revealed from their secured a mean score of 3.52 on a 5 point rating scale. The higher secondary level educated respondents register the second position in their overall experienced vulnerable disaster events and it is reflected from their secured a mean score of 3.25 on a 5 point rating scale. The under graduate

degree level educated respondents record the third position in their overall rated vulnerable disaster events and it is evident from their secured a mean score of 2.91 on a 5 point rating scale. The post graduate degree level educated respondents come down to the last position in their overall rated vulnerable disaster events and it is estimated from their secured a mean score of 2.64 on a 5 point rating scale.

The anova two way model is applied for further discussion. The computed anova value 154.48 is greater than its tabulated value at 5 percent level significance. Hence, the variation among the overall rated vulnerable disaster events is statistically identified as significant. In another point, the computed anova value 143.26 is greater than its tabulated value at 5 percent level significance. Hence, the variation among the educational groups is statistically identified as significant as per the respondents rating on vulnerable disaster events.

Table 3 Sex Wise Respondents Ranking on Vulnerable Disaster Events

Variables	Male	Female	Mean
Extreme heat waves	2.28	3.10	2.69
Droughts	2.52	3.34	2.93
Wildfires	3.08	3.90	3.49
Extreme thunderstorms; windstorms	1.59	2.21	1.90
Hail	2.80	3.62	3.21
Extreme snowstorms	2.96	3.78	3.37
Extreme cold waves	3.21	4.03	3.62
Floods	2.17	2.99	2.58
Sudden unexpected flooding in the form of flash flood	3.37	4.19	3.78
Inland excess water in the form of higher than normal groundwater level	1.87	2.69	2.28
Landslides in the form of mudflows, shallow landslides etc	2.35	3.17	2.76
Tsunami	4.04	4.26	4.15
Coastal erosion	1.90	2.32	2.11
Earthquakes	3.63	4.25	3.94
Sinkholes	3.81	4.23	4.02
Volcanic eruptions	2.06	2.88	2.47
Limnic eruptions	2.61	3.43	3.02
Average	2.72	3.43	3.08

Source: Computed from primary data

t statistical value 15.60, df 16, t critical value 1.74

Data presented in table 3 indicate the sex wise respondents' rating on vulnerable disaster events. The female respondents' rank the first positions in their overall rated vulnerable disaster events as per their secured a mean score of 3.43 on a 5 point rating scale. The male respondents' hold the second position in their overall rated vulnerable disaster events and it is estimated from their secured a mean score of 2.72 on a 5 point rating scale.

The t test is applied for further discussion. The computed t value 15.60 is greater than its tabulated value at 5 per cent level significance. Hence, there is a significant difference

between male respondents' and female respondents' in their overall rated vulnerable disaster events.

Level of Natural Disaster Preparedness

This section deals with respondents' rating on level of natural disaster preparedness. It can be assessed with the help of 20 factors on a 5 point rating scale. These include careful selection of the construction site in residential building, careful selection of the building materials for residential building, thermal insulation in house walls and roof, regular control over the physical condition of the house, flat possibly by craftsmen, strengthening the roof, having a safe cellar and underground shelter, installing weatherproof doors and windows and insulating them, installing roller blinds and shutters on windows, installing air conditioning in the house, thorough caretaking around the house keeping, clean drainage ditch, and clearing up inflammable forest litter, avoidance of unsafe storing of hazardous materials in the form of inflammable and explosive materials around the house, avoidance of waste dumping in public land, self education for self-protection, following the official weather forecasts and warnings regularly, medication and first aid kit stored at home, stocks of food and drinking water, stocks of fuel, storing "survival" tools including candle, match, electric torch, batteries, warm blanket, gum boots, paying special attention to the vulnerable members of the family such as babies, elderly people, people with chronic diseases in time of heat waves and special insurances.

Table 4 Occupation Wise Respondents Rating on Natural Disaster Preparedness

Variables	Government employee	Private employee	Professionals	Business	Mean
Careful selection of the construction site in residential building	3.34	2.54	3.00	2.20	2.77
Careful selection of the building materials for residential building	2.23	1.63	2.04	1.53	1.86
Thermal insulation in house walls and roof	3.75	2.95	3.41	2.61	3.18
Regular control over the physical condition of the house, flat possibly by craftsmen	4.20	3.80	4.16	3.56	3.93
Strengthening the roof	3.13	2.33	2.79	1.99	2.56
Having a safe cellar and underground shelter	4.26	4.00	4.20	3.66	4.03
Installing weatherproof doors and windows and insulating them	2.12	1.52	1.88	1.48	1.75
Installing roller blinds and shutters on windows	3.43	2.63	3.09	2.29	2.86
Installing air conditioning in the house	3.98	3.18	3.64	2.84	3.41
Thorough caretaking around the house keeping clean drainage ditch, and clearing up inflammable forest litter	3.04	2.24	2.70	1.90	2.47
Avoidance of unsafe storing of hazardous materials in the form of inflammable and explosive materials around the house	4.11	3.31	3.77	2.97	3.54
Avoidance of waste dumping in public land	2.21	1.71	2.17	1.67	1.94
Self education for self-protection	3.63	2.83	3.29	2.49	3.06

Following the official weather forecasts and warnings regularly	4.25	4.05	4.21	3.81	4.08
Medication and first aid kit stored at home	4.14	3.44	3.90	3.20	3.67
Stocks of food and drinking water	4.22	3.62	4.08	3.48	3.85
Stocks of fuel	2.64	2.04	2.50	1.90	2.27
Storing “survival” tools including candle, match, electric torch, batteries, warm blanket, gum boots	4.27	4.20	4.23	4.10	4.20
Paying special attention to the vulnerable members of the family such as babies, elderly people, people with chronic diseases in time of heat waves	4.11	3.51	3.97	3.37	3.74
Special insurances	2.95	2.15	2.61	1.81	2.38
Average	3.50	2.88	3.28	2.64	3.08

Source: Computed from primary data

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>F crit</i>
Variation due to level of natural disaster preparedness	48.33147	19	2.543762	138.8781	1.771972
Variation due to occupational status	8.939634	3	2.979878	162.6881	2.766438
Error	1.044041	57	0.018317		
Total	58.31515	79			

Data presented in table 4 indicate the area wise respondents’ rating on natural disaster preparedness. It could be noted that out of the 20 indicators on natural disaster preparedness, the respondents rate the possession of storing “survival” tools including candle, match, electric torch, batteries, warm blanket and gum boots as their first level natural disaster preparedness and it is evident from their secured a mean score of 4.15 on a 5 point rating scale. Following the official weather forecasts and warnings regularly is rated at second level natural disaster preparedness and it is estimated from the respondents’ secured a mean score of 4.02 a 5 point rating scale. The respondents rate the natural disaster preparedness by citing the fact that having a safe cellar and underground shelter as their third level observed preparedness. It is evident from their secured a mean score of 3.94 on a 5 point rating scale. The respondents perceive the fourth natural disaster preparedness by citing the situation that regular control over the physical condition of the house, flat possibly by craftsmen and it is observed from the respondents’ secured a mean score of 3.78 on a 5 point rating scale. Holding stock of food and drinking water is rated at fifth natural disaster preparedness and it could be known from the respondents’ secured a mean score of 3.62 on a 5 point rating scale.

The respondents’ rate paying special attention to the members of the family such as babies, elderly people and people with chronic diseases in time of heat waves as their realized sixth level natural disaster preparedness and it is revealed from their secured a mean score of 3.49 on a 5 point rating scale. Medication and first aid kit stored at home is rated at seventh level natural disaster preparedness and it observed from the respondents’ secured a

mean score of 3.37 on a 5 point rating scale. The respondents rate the natural disaster preparedness in the form of avoidance of unsafe storing of hazardous materials in the form of inflammable and explosive materials around the house is their eighth level natural disaster preparedness. It is evident from their secured a mean score of 3.21 on a 5 point rating scale. The respondents report the ninth level natural disaster preparedness by citing the requirement that installing air conditioning in the house as per their secured a mean score of 3.02 on a 5 point rating scale. Thermal insulation in house walls and roof is rated at tenth level natural disaster preparedness and it is evident from the respondents' secured a mean score of 2.93 on a 5 point rating scale.

The respondents rate the self education for self-protection as their eleventh level natural disaster preparedness and it could be known from their secured a mean score of 2.76 on a 5 point rating scale. Installing roller blinds and shutters on windows is rated at twelfth level natural disaster preparedness and it is reflected from the respondents' secured a mean score of 2.69 on a 5 point rating scale. The respondents report the thirteenth level natural disaster preparedness by citing the fact that careful selection of the construction site in residential building. It is evident from their secured a mean score of 2.58 on a 5 point rating scale. The respondents report the fourteenth level natural disaster preparedness by citing the fact that strengthening the roof and it is clear from their secured a mean score of 2.47 on a 5 point rating scale. Thorough caretaking around the house keeping clean drainage ditch, and clearing up inflammable forest litter is rated at fifteenth level observed of natural disaster preparedness as per the respondents' secured a mean score of 2.28 on a 5 point rating scale. The respondents cite the sixteenth level natural disaster preparedness by citing the event of special insurances and it is clear from their secured a mean score of 2.11 on a 5 point rating scale. Stocks of fuel is rated at seventeenth level natural disaster preparedness and it observed from the respondents' secured a mean score of 1.90 on a 5 point rating scale. The respondents rate the eighteenth level natural disaster preparedness by citing the fact that avoidance of waste dumping in public land. It is evident from their secured a mean score of 2.58 on a 5 point rating scale. The respondents report the nineteenth level natural disaster preparedness by citing the fact that careful selection of the building materials for residential building and it is clear from their secured a mean score of 2.47 on a 5 point rating scale. Installing weatherproof doors and windows and insulating them is rated at twentieth level natural disaster preparedness as per the respondents' secured a mean score of 2.28 on a 5 point rating scale.

The business group respondents rank the first position in their overall rated natural disaster preparedness and it is evident from their secured a mean score of 3.42 on a 5 point rating scale. The professional group respondents record the second position in their overall reported natural disaster preparedness and it is evident from their secured a mean score of 3.19 on a 5 point rating scale. The private employee group register the third position in their overall stated natural disaster preparedness and it is evident from their secured a mean score of 2.97 on a 5 point rating scale. The government employee group come down to the last position in their overall reported natural disaster preparedness and it is evident from their secured a mean score of 2.71 on a 5 point rating scale.

The anova two way model is applied for further discussion. The computed anova value 138.87 is greater than its tabulated value at 5 percent level significance. Hence, the variation among the overall rated indicators of natural disaster preparedness is statistically identified as significant. In another point, the computed anova value 162.68 is greater than

its tabulated value at 5 percent level significance. Hence, the variation among the occupational groups is statistically identified as significant as per the respondents rating on natural disaster preparedness.

Table 5 Education Wise Respondents Rating on Natural Disaster Preparedness

Variables	Secondary	Higher secondary	Under graduate	Post graduate	Mean
Careful selection of the construction site in residential building	2.29	2.62	2.92	3.25	2.77
Careful selection of the building materials for residential building	1.68	1.76	1.96	2.04	1.86
Thermal insulation in house walls and roof	2.70	3.03	3.33	3.66	3.18
Regular control over the physical condition of the house, flat possibly by craftsmen	3.65	3.78	4.08	4.21	3.93
Strengthening the roof	2.08	2.41	2.71	3.04	2.56
Having a safe cellar and underground shelter	3.75	3.98	4.18	4.21	4.03
Installing weatherproof doors and windows or insulating them	1.57	1.60	1.80	2.03	1.75
Installing roller blinds and shutters on windows	2.38	2.71	3.01	3.34	2.86
Installing air conditioning in the house	2.93	3.26	3.56	3.89	3.41
Thorough caretaking around the house keeping clean drainage ditch, and clearing up inflammable forest litter	1.99	2.32	2.62	2.95	2.47
Avoidance of unsafe storing of hazardous materials in the form of inflammable and explosive materials around the house	3.06	3.39	3.69	4.02	3.54
Avoidance of waste dumping in public land	1.66	1.79	2.09	2.22	1.94
Self education for self-protection	2.58	2.91	3.21	3.54	3.06
Following the official weather forecasts and warnings regularly	3.90	4.03	4.13	4.26	4.08
Medication and first aid kit stored at home	3.19	3.52	3.82	4.15	3.67
Stocks of food and drinking water	3.47	3.70	4.00	4.23	3.85
Stocks of fuel	1.89	2.12	2.42	2.65	2.27
Storing "survival" tools including candle, match, electric torch, batteries, warm blanket, gum boots	4.04	4.22	4.26	4.28	4.20
Paying special attention to the vulnerable members of the family such as babies, elderly people, people with chronic diseases in time of heat waves	3.36	3.59	3.89	4.12	3.74
Special insurances	2.29	2.23	2.53	2.86	2.38
Average	2.72	2.95	3.21	3.45	3.08

Source: Computed from primary data

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>F crit</i>
Variation due to vulnerable natural disaster preparedness	47.79917	19	2.515746	196.7662	1.771972
Variation due to educational status	5.936104	3	1.978701	154.7618	2.766438
Error	0.728771	57	0.012785		
Total	54.46405	79			

Table 5 presents data on the education wise respondents' rating on natural disaster preparedness. The post graduate degree level educated respondents rank the first position in their overall ranked indicators of natural disaster preparedness and it is revealed from their secured a mean score of 3.45 on a 5 point rating scale. The under graduate degree level educated respondents register the second position in their overall rated indicators of natural disaster preparedness and it is reflected from their secured a mean score of 3.21 on a 5 point rating scale. The higher secondary level educated respondents record the third position in their overall rated indicators of natural disaster preparedness and it is evident from their secured a mean score of 2.95 on a 5 point rating scale. The secondary level educated respondents come down to the last position in their overall rated indicators of natural disaster preparedness and it is estimated from their secured a mean score of 2.72 on a 5 point rating scale.

The anova two way model is applied for further discussion. The computed anova value 196.76 is greater than its tabulated value at 5 percent level significance. Hence, the variation among the overall rated indicators of natural disaster preparedness is statistically identified as significant. In another point, the computed anova value 154.76 is greater than its tabulated value at 5 percent level significance. Hence, the variation among the educational groups is statistically identified as significant as per the respondents rating on natural disaster preparedness.

Table 6 Sex Wise Respondents Rating on Natural Disaster Preparedness

Variables	Male	Female	Mean
Careful selection of the construction site in residential building	3.14	2.40	2.77
Careful selection of the building materials for residential building	2.03	1.69	1.86
Thermal insulation in house walls and roof	3.55	2.81	3.18
Regular control over the physical condition of the house, flat possibly by craftsmen	4.20	3.66	3.93
Strengthening the roof	2.93	2.19	2.56
Having a safe cellar and underground shelter	4.25	3.81	4.03
Installing weatherproof doors and windows or insulating them	1.98	1.52	1.75
Installing roller blinds and shutters on windows	3.23	2.49	2.86
Installing air conditioning in the house	3.78	3.04	3.41
Thorough caretaking around the house keeping clean drainage ditch, and clearing up inflammable forest litter	2.84	2.10	2.47

Avoidance of unsafe storing of hazardous materials in the form of inflammable and explosive materials around the house	3.91	3.17	3.54
Avoidance of waste dumping in public land	2.01	1.87	1.94
Self education for self-protection	3.43	2.69	3.06
Following the official weather forecasts and warnings regularly	4.26	3.90	4.08
Medication and first aid kit stored at home	4.04	3.30	3.67
Stocks of food and drinking water	4.20	3.50	3.85
Stocks of fuel	2.64	1.90	2.27
Storing "survival" tools including candle, match, electric torch, batteries, warm blanket, gum boots	4.27	4.03	4.20
Paying special attention to the vulnerable members of the family such as babies, elderly people, people with chronic diseases in time of heat waves	4.11	3.37	3.74
Special insurances	2.65	2.11	2.38
Average	3.37	2.78	3.08

Source: Computed from primary data

t statistical value 13.44, df 19, t critical value 2.09

Data presented in table 6 indicate the sex wise respondents' rating on natural disaster preparedness. The male respondents' rank the first positions in their overall rated indicators of natural disaster preparedness as per their secured a mean score of 3.37 on a 5 point rating scale. The male respondents' hold the second position in their overall rated indicators of natural disaster preparedness and it is estimated from their secured a mean score of 2.78 on a 5 point rating scale.

The t test is applied for further discussion. The computed t value 13.44 is greater than its tabulated value at 5 per cent level significance. Hence, there is a significant difference between male respondents' and female respondents' in their overall rated indicators of natural disaster preparedness.

Conclusion

It could be seen clearly from the above discussion that the respondents' rate the high vulnerable disaster events by citing the scenario that occurrence of tsunamis, sinkholes, earthquakes, sudden unexpected flooding in the form of flash flood and occurrence of extreme cold waves as per their secured a mean score above 3.50 on a 5 point rating scale. The respondents' rate the moderate level vulnerable disaster events by stating the episodes that occurrence of wildfires, extreme snowstorms, hail, limnic eruptions, droughts, landslides in the form of mudflows and shallow landslides, extreme heat waves and floods as per their secured a mean score in the range of 2.50 to 3.50 on a 5 point rating scale. The respondents' rate the low level vulnerable disaster events by citing the indicators that volcanic eruptions, inland excess water in the form of higher than normal groundwater level, coastal erosion and extreme thunderstorms and windstorms as per their secured a mean score below 2.50 on a 5 point rating scale. It could be observed that business group respondents rank the first position in their overall rated vulnerable disaster events, private employee group respondents the second, professional group respondents the third and government employee group respondents the last.

The result of education wise analysis reveals that the secondary level educated respondents rank the first position in their overall rated vulnerable disaster events, higher secondary level educated respondents' the second, under graduate degree level educated respondents the third and post graduate degree level educated respondents' the last. The result of gender wise analysis reveals that the male respondents lag behind the female respondents in their overall rated vulnerable disaster events.

The findings of respondents rating on level of natural disaster preparedness indicate the following facts. The respondents' rate the high level natural disaster preparedness by citing the indicators that storing "survival" tools including candle, match, electric torch, batteries, warm blanket and gum boots, following the official weather forecasts and warnings regularly, having a safe cellar and underground shelter, regular control over the physical condition of the house, flat possibly by craftsmen, stocks of food and drinking water, paying special attention to the members of the family such as babies, elderly people and people with chronic diseases in time of heat waves, medication and first aid kit stored at home and avoidance of unsafe storing of hazardous material in the form of inflammable and explosive materials around the house as per their secured a mean score above 3.50 on a 5 point rating scale. The respondents' rate the moderate level natural disaster preparedness by stating the facts that installing air conditioning in the house, thermal insulation in house walls and roof, self education for self-protection, installing roller blinds and shutters on windows, careful selection of the construction site in residential building and strengthening the roof as per their secured a mean score in the range of 2.50 to 3.50 on a 5 point rating scale. The respondents' rate the low level natural disaster preparedness by citing the indicators that thorough caretaking around the house keeping clean drainage ditch, and clearing up inflammable forest litter, special insurances, stocks of fuel, avoidance of waste dumping in public land, careful selection of the building materials for residential building and installing weatherproof doors and windows and insulating them as per their secured a mean score below 2.50 on a 5 point rating scale. It could be observed that the respondents of government employee group rank the first position in their overall rated indicators of natural disaster preparedness, respondents of professional group the second, respondents of private employee group the third and respondents of business group the last.

The result of education wise analysis reveals that the post graduate degree level educated respondents rank the first position in their overall rated indicators of natural disaster preparedness, under graduate degree level educated respondents' the second, higher secondary level educated respondents the third and secondary level educated respondents' the last. The result of gender wise analysis reveals that the female respondents lag behind the male respondents in their overall rated indicators of natural disaster preparedness.

References

- Bagaria, J., Heggie, C., Abrahams, J., & Murray, V. (2009). Evacuation and sheltering of hospitals in emergencies: a review of international experience. *Pre hospital and disaster medicine*, 24(5), pp: 461-467.
- Bradley, D.T., McFarland, M., & Clarke, M. (2014). The Effectiveness of Disaster Risk Communication: A Systematic Review of Intervention Studies-Version 1. *PLoS Currents*, 6.
- Chakrabarti, P.G. D. (2015). Chapter 15: Integrating disaster risk reduction with climate change adaptation: Recent initiatives in South Asia. In *Climate Change Adaptation and Disaster Risk Reduction: Issues and Challenges*, pp. 325-347

Doocy, S., & Tappis, H. (2015). Protocol: The Effectiveness and Efficiency of Case-Based Approaches in Emergencies: a Systematic Review. *The Campbell Collaboration*, pp: 45.

Elie, A.A., Fadi, E.J., Lama, B.K., El-Eid, J., Brax, H., Akik, C., . . . , Oliver, S.(2015). Mechanisms and Models of Coordination Between Organizations, Agencies and Bodies Providing or Financing Health Services in Humanitarian Crises: A Systematic Review. *PLoS ONE* 10(9).

Furr, J M., Comer, J.S., Edmunds, J.M., & Kendall, P.C. (2010). Disasters and Youth: A MetaAnalytic Examination of Posttraumatic Stress. *Journal of Consulting and Clinical Psychology*, 78(6), pp: 765–780.

Haque, U., Hashizume, M., Kolivras, K. N., Overgaard, H. J., Das, B. & Yamamoto, T. (2012). Reduced death rates from cyclones in Bangladesh: what more needs to be done? *Bull World Health Organ*, 90(2), pp: 150-156.

Johnson, V. A., Ronan, K.R., Johnston, D.M., & Peace, R. (2014). Evaluations of disaster education programs for children: A methodological review. *International Journal of Disaster Risk Reduction*, 9, pp: 107-123.

Lipinski, K., Liu, L.L., & Wong, P.W. (2016). The effectiveness of psychosocial interventions implemented after the Indian Ocean Tsunami: A systematic review. *The International journal of social psychiatry*, 62(3), pp: 271-80.

Nekoie, M.M, Kurland, L., Moosazadeh, M., Ingrassia, P. L., Della, C. F., Djalali, A. (2016). Tools and Checklists Used for the Evaluation of Hospital Disaster Preparedness: A Systematic Review. *Disaster Medicine and Public Health Preparedness*, pp: 1-8.

Poser, K. & Dransch, D. (2010). Volunteered geographic information for disaster management with application to rapid flood damage estimation. *Geomatica*, 64(1), pp: 89-98.

Sadeghi-Bazargani, H., Azami-Aghdash, S., Kazemi, A., & Ziapour, B. (2015). Crisis management aspects of bam catastrophic earthquake: review article. *Health promotion perspectives*, 5(1), pp: 3-13.

Timbie, J.W., Ringel, J.S., Fox, D. S., Pillemer, F., Waxman, D. A., Moore, M., . . . , Kellerman, A. L. et al. (2013). Systematic Review of Strategies to Manage and Allocate Scarce Resources During Mass Casualty Events. *Annals of Emergency Medicine*, 61(6), pp: 677-689.

UNESCAP. (2011). Achievements and challenges in implementing the Hyogo Framework for Action in Asia and the Pacific. United Nations: Economic and Social Commission for Asia and the Pacific: Committee on Disaster Risk Reduction, Bangkok, Thailand.

Veenema, T.G., Rains, A.B., Casey-Lockyer, M., Springer, J., & Kowal, M. (2015). Quality of healthcare services provided in disaster shelters: An integrative literature review. *International emergency nursing*, 23(3), pp: 225-31.

Zhong, S., Clark, M., Hou, X.Y., Zang, Y., & FitzGerald G. (2014). Progress and challenges of disaster health management in China: a scoping review. *Global Health Action*, 7, pp: 1-9.

A note on Jacobi's Theta Functions

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Abstract: In this paper, representation of Jacobi's theta function in the form of hypergeometric function with argument Jacobi's theta functions has been established.

Keywords and Phrases: Hypergeometric function, Jacobi theta functions, Identity.

2000 Mathematics Subject Classification: Primary 33D15.

1. Introduction, Notations and Definitions

The shifted factorial is denoted and defined by,

$$(a)_n = \begin{cases} 1, & n = 0 \\ a(a+1)(a+2)\dots(a+n-1), & n > 0, \end{cases}$$

(1.1)

where 'a' is complex number. In the light of (1.1) hypergeometric series is defined by,

$${}_rF_s \left[\begin{matrix} a_1, a_2, \dots, a_r; z \\ b_1, b_2, \dots, b_s \end{matrix} \right] = \sum_{n=0}^{\infty} \frac{(a_1, a_2, \dots, a_r)_n z^n}{(b_1, b_2, \dots, b_s)_n n!}$$

(1.2)

where $(a_1, a_2, \dots, a_r)_n = (a_1)_n (a_2)_n \dots (a_r)_n$ and series in (1.2) converges absolutely,

if

$$\left. \begin{array}{l} r \leq s \\ r = s + 1 \text{ and } |z| < 1 \\ \text{It diverges if} \\ r > s + 1 \text{ and } z \neq 0 \end{array} \right\} \quad (1.3)$$

The q-shifted factorial is defined by,

$$(a; q)_n = \begin{cases} 1, & n = 0 \\ (1-a)(1-aq)\dots(1-aq^{n-1}), & n \geq 1. \end{cases} \quad (1.4)$$

Also,

$$(a; q)_{\infty} = \prod_{r=0}^{\infty} (1-aq^r), \quad (1.5)$$

where $|q| < 1$.

Jacobi defined four functions which are called Jacobi's theta functions,

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$$\theta_1(z, q) = 2 \sum_{n=0}^{\infty} (-1)^n q^{\left(n+\frac{1}{2}\right)^2} \sin(2n+1)z, \tag{1.6}$$

$$\theta_2(z, q) = 2 \sum_{n=0}^{\infty} q^{\left(n+\frac{1}{2}\right)^2} \cos(2n+1)z, \tag{1.7}$$

$$\theta_3(z, q) = 1 + 2 \sum_{n=1}^{\infty} q^{n^2} \cos 2nz \tag{1.8}$$

and

$$\theta_4(z, q) = 1 + 2 \sum_{n=1}^{\infty} (-1)^n q^{n^2} \cos 2nz. \tag{1.9}$$

For $z = 0$, above function reduce as,

$$\theta_1(q) = 0,$$

$$\theta_2(q) = 2 \sum_{n=0}^{\infty} q^{\left(n+\frac{1}{2}\right)^2} = q^{\frac{1}{4}} \sum_{n=-\infty}^{\infty} q^{n^2+n}. \tag{1.10}$$

$$\theta_3(q) = 1 + 2 \sum_{n=1}^{\infty} q^{n^2} = \sum_{n=-\infty}^{\infty} q^{n^2} \tag{1.11}$$

$$\theta_4(q) = 1 + 2 \sum_{n=1}^{\infty} (-1)^n q^{n^2} = \sum_{n=-\infty}^{\infty} (-1)^n q^{n^2} \tag{1.12}$$

By an appeal of Jacobi's triple product identity, viz.,

$$\sum_{n=-\infty}^{\infty} (-1)^n q^{n^2} z^n = \left(q^2, zq, q/z; q^2 \right)_{\infty} \tag{1.13}$$

we have,

$$\theta_2(q) = 2q^{1/4} \left(q^2; q^2 \right)_{\infty} \left(-q^2; q^2 \right)_{\infty}^2, \tag{1.14}$$

$$\theta_3(q) = \left(q^2; q^2 \right)_{\infty} \left(-q; q^2 \right)_{\infty}^2, \tag{1.15}$$

$$\theta_4(q) = \left(q^2; q^2 \right)_{\infty} \left(q; q^2 \right)_{\infty}^2, \tag{1.16}$$

2. Identities Involving Jacobi's Theta Functions

(a) $\theta_3(q) + \theta_4(q)$

$$= \sum_{n=0}^{\infty} q^{n^2} + \sum_{n=0}^{\infty} (-1)^n q^{n^2}$$

$$\begin{aligned}
 &= \sum_{n=0}^{\infty} \{1+(-1)^n\} q^{n^2} \\
 &\text{(Taking } 2n \text{ for } n \text{ we have)} \\
 &= 2 \sum_{n=0}^{\infty} (q^4)^{n^2} = 2\theta_3(q^4). \tag{2.1}
 \end{aligned}$$

(b) $\theta_3(q) - \theta_4(q)$

$$\begin{aligned}
 &= \sum_{n=0}^{\infty} \{1-(-1)^n\} q^{n^2} \\
 &\text{(Taking } 2n+1 \text{ for } n \text{ we find)} \\
 &= 2 \sum_{n=0}^{\infty} q^{4n^2+4n+1} = 2q \sum_{n=0}^{\infty} (q^4)^{n^2+n} \\
 &= 2\theta_2(q^4) \tag{2.2}
 \end{aligned}$$

(c) Multiplying (2.1) and (2.2) we find,

$$\theta_3^2(q) - \theta_4^2(q) = 4\theta_3(q^4)\theta_2(q^4) \tag{2.3}$$

(d) $\theta_3(q)\theta_4(q) = (q^2; q^2)_{\infty}^2 (-q; q^2)_{\infty}^2 (q; q^2)_{\infty}^2$

$$\begin{aligned}
 &= (q^2; q^2)_{\infty}^2 (q^2; q^4)_{\infty}^2 \\
 &= (q^4; q^4)_{\infty}^2 (q^2; q^4)_{\infty}^4 \\
 &= \theta_4^2(q^2). \tag{2.4}
 \end{aligned}$$

(e) $\theta_3^2(q) = \theta_3(q)\theta_3(q) = \sum_{m=0}^{\infty} q^{m^2} \sum_{n=0}^{\infty} q^{n^2} = \sum_{m,n=0}^{\infty} q^{m^2+n^2}$,

$$\theta_4^2(q) = \sum_{m=0}^{\infty} (-1)^m q^{m^2} \sum_{n=0}^{\infty} (-1)^n q^{n^2} = \sum_{m,n=0}^{\infty} (-1)^{m+n} q^{m^2+n^2},$$

So,

$$\theta_3^2(q) + \theta_4^2(q) = \sum_{m,n=0}^{\infty} \{1+(-1)^{m+n}\} q^{m^2+n^2}$$

Taking $\left. \begin{matrix} m+n = 2r \\ m-n = 2s \end{matrix} \right\} \Rightarrow m = r+s, n = r-s$

$$\begin{aligned}
 &= 2 \sum_{r,s=0}^{\infty} q^{2r^2+2s^2} \\
 &= 2 \sum_{r=0}^{\infty} (q^2)^{r^2} \sum_{s=0}^{\infty} (q^2)^{s^2} \\
 &= 2\theta_3^2(q^2).
 \end{aligned} \tag{2.5}$$

3. Proof of Jacobi's Identity

The most celebrated Jacobi's identity is

$$\theta_3^4(q) = \theta_2^4(q) + \theta_4^4(q). \tag{3.1}$$

Proof: Multiplying (2.3) and (2.5) we get,

$$\theta_3^4(q) - \theta_4^4(q) = 8\theta_3^4(q^4)\theta_2(q^4)\theta_3^2(q^2) \tag{3.2}$$

Since,

$$\begin{aligned}
 \theta_3(q^4) &= (q^8; q^8)_{\infty} (-q^4; q^8)_{\infty}^2 \\
 \theta_2(q^4) &= 2q(q^8; q^8)_{\infty} (-q^8; q^8)_{\infty}^2 \\
 \theta_3(q^2) &= (q^4; q^4)_{\infty} (-q^2; q^4)_{\infty}^2
 \end{aligned}$$

Now, putting these values in (3.2) we get

$$\begin{aligned}
 \theta_3^4(q) - \theta_4^4(q) &= 16q(q^8; q^8)_{\infty}^2 (-q^8; q^8)_{\infty}^2 (-q^4; q^8)_{\infty}^2 (q^4; q^4)_{\infty}^2 (-q^4; q^4)_{\infty}^4 \\
 &= \frac{16q(q^4; q^4)_{\infty}^4 (-q^4; q^4)_{\infty}^2 (-q^2; q^4)_{\infty}^4 (-q^4; q^8)_{\infty}^2}{(q^8; q^{16})_{\infty}^2} \\
 &= \frac{16q(q^2; q^2)_{\infty}^4 (-q^2; q^2)_{\infty}^4 (-q^2; q^4)_{\infty}^2 (-q^4; q^4)_{\infty}^2}{(q^2; q^4)_{\infty}^2} \\
 &= 16q(q^2; q^2)_{\infty}^4 (-q^2; q^2)_{\infty}^6 (-q^2; q^4)_{\infty}^2 \\
 &= 16q(q^2; q^2)_{\infty}^4 (-q^2; q^2)_{\infty}^8
 \end{aligned}$$

$$= \theta_2^4(q) \tag{3.3}$$

Hence

$$\theta_3^4(q) = \theta_2^4(q) + \theta_4^4(q).$$

which is precisely Jacobi's identity.

4. Hypergeometric Representation of $\theta_3(q)$

Let us consider the following transformation due to Ramanujan,

$${}_2F_1\left[\frac{1}{2}, \frac{1}{2}; 1; 1 - \left(\frac{1-x}{1+x}\right)^2\right] = (1+x) {}_2F_1\left[\frac{1}{2}, \frac{1}{2}; 1; x^2\right]. \tag{4.1}$$

Taking $\frac{1-x}{1+x} = \frac{\theta_4^2(q)}{\theta_3^2(q)},$

So that $x = \frac{\theta_3^2(q) - \theta_4^2(q)}{\theta_3^2(q) + \theta_4^2(q)}$

$$1+x = \frac{2\theta_3^2(q)}{\theta_3^2(q) + \theta_4^2(q)}$$

and $x^2 = 1 - \frac{4\theta_3^2(q)\theta_4^2(q)}{\{\theta_3^2(q) + \theta_4^2(q)\}^2}$

making use of these results in (4.1) we get

$${}_2F_1\left[\frac{1}{2}, \frac{1}{2}; 1; 1 - \frac{\theta_4^4(q)}{\theta_3^4(q)}\right] = \frac{\theta_3^2(q)}{\theta_3^2(q^2)} {}_2F_1\left[\frac{1}{2}, \frac{1}{2}; 1; \frac{\theta_4^4(q^2)}{\theta_3^4(q^2)}\right]. \tag{4.2}$$

Iterating it we have

$${}_2F_1\left[\frac{1}{2}, \frac{1}{2}; 1; 1 - \frac{\theta_4^4(q)}{\theta_3^4(q)}\right] = \frac{\theta_3^2(q)}{\theta_3^2(q^{2^n})} {}_2F_1\left[\frac{1}{2}, \frac{1}{2}; 1; \frac{\theta_4^4(q^{2^n})}{\theta_3^4(q^{2^n})}\right]. \tag{4.3}$$

As $n \rightarrow \infty$ we find

$$\theta_3(q) = {}_2F_1\left[\frac{1}{2}, \frac{1}{2}; 1; 1 - \frac{\theta_4^4(q)}{\theta_3^4(q)}\right]$$

$$= {}_2F_1 \left[\frac{1}{2}, \frac{1}{2}; 1; \frac{\theta_2^4(q)}{\theta_3^4(q)} \right],$$

which is required representation.

References

- [1] Berndt, B.C., Ramanujan's Notebooks part V, Springer-Verlag, New York (1998).
- [2] Bhargava, S., Unification of cubic analogues of the Jacobian theta-function, J. Mathematical Analysis and Applications, 193 (1995), 543-558.
- [3] Ramanujan, S., Notebook Part II, Tata Institute of Fundamental Research, Bombay (1957).

A Study on the Impact of Green Marketing on Consumer Buying Pattern and Decision Making: With Reference to Bangalore Region

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Abstract

There was time in the marketing scenario when the customer was least concerned with the environmental issues, say about 50 years ago the population was less, country was at developing stage and authorities were conscious about the conservation for the environment. But now the time has changed, the dragon of development has galloped the preventing crust of the earth and all the sections of the society are being affected to the same extent of global warming, pollution and air & water born diseases. Today the customer is trying to get aware about the concept of 'Green' and even the organizations are willing to educate them for the same. People are getting aware about the benefits of purchasing and using the 'Green' products. This is a well-known reality that environment will be safe by the combined effort of all the section. This paper studies the attitude of the customers towards the use and purchase of 'Green' products and efforts of the organization for the same.

Keywords: 'Green', Green marketing, Consumers, Attitude.

Introduction

The governments of the different countries are making a number of efforts to make the people aware about the benefits of environment protection, in the early 90s' when the wave of development and foreign products touched the lands of India, it bring along the manufacturing technology, radiation producing equipment's and many other things which were harmful for the environment. At the initial level the drive of environment protection was only a motto, it was only at the starting of new millennium when the authorities brought this aspect under the umbrella of policy and law. **Chan (2004)** As a matter of fact India is not the only country that is striving to save the environment, a number of other developed and developing countries are also looking for the same, like USA, Europe, China, etc. in the current scenario all the aspect of business and marketing are being covered under the drive of environment protection like design of the product, manufacturing process, labeling of the product and even the usage of the same.

The marketing strategies of the companies have changed a lot in the recent past, bio-degradable material is used for the packing material, eco-friendly sign is put on the

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respective label of the product and many other such efforts are being made. The companies are having another issue that due to these changes in the products, the respective customers are not getting affected in terms of usage and attitude. This is because of the reason that the customer takes time to adopt any change in the products they are using in a routine manner. **Rahbar (2011)** Companies that are following the green manufacturing system are able to create a niche for themselves in the given market, thanks to the deep reach of media in the very last customer.

All over the globe the companies are experimenting with the elements of green marketing and impact of the same on the attitude of the customers. This present study is an add on in the same and tries to study the level of change in the purchase pattern and attitude of the customers for the same.

Phenomenon of Green Marketing

The meaning of marketing is to identify the needs of the customers and fulfill them with the support of all available resources. But in the current scenario the level of resource has become selective and expensive as well. Though the products are able to cater the customer's needs but still the process of making and packing them has changed to a certain extent. Green marketing as a concept is related to the conservation of the environment in all respects which means that the organization will use the processes which are environment friendly and may cause no harm to the present state of environment. **Grant (2007)** this will require a series of efforts to be made on the part of manufacturers and suppliers where they might require making changes in their machine and equipments, change a waste disposal system, keep the track of raw material and its source and even the respective supply chain of the company.

The American Marketing Association defines the green marketing in terms of studying all the aspects of a given organization that are related to pollution, wastage of energy or over usage of energy, even the source of energy is to be considered. The phenomenon of green marketing can never be fixed as because the respective needs of the environment protection is changing every now and then. **Kinoti (2011)**

Green marketing has passed three eras, the first, ecological green marketing, lasted from the 1960s into the early 1970s. Characteristics of this era concentrated on external problems of the environment, such as air pollution.

Related Tools of Green Marketing

The market scenario has emerged with the related tools of green marketing as such, where the efforts are made to make the consumer understand the basic benefits of environment protection and buying and using the green products. Some of such tools can be listed as follows:

- a. Eco-Labeling
- b. Eco-Branding, and
- c. Environmental Commercials

These efforts will make the customer aware about the benefits of environmental friendly products and if implemented at the policy level these tools might help to change the attitude of the customer towards the same. **Kotler (2012)**



Tools of Green Marketing

The details of the green marketing tools can be given in the following manner:

a. Eco-labeling

The term eco-labeling refers to the labels given on the very packing of the products that indicates that whether the product is eco-friendly or not. **Kotler (2013)** As a matter of fact the labels include any name, diagram, etc. that is the presentation of the name of the products and includes the basic information about the product. this can be understood by the example of Cigarette packets sold with a figurative warning that tell that smoking can cause cancer and is injurious to health.

b. Eco-brand

Generally a brand refers to any name, sign, symbol or design or even a combination of the same which help to identify a product or a service and also differentiate the same with other similar products; in the same way the eco-brands represent a name or symbol that states that the product is not harmful to the environment. **Polonsky (2013)** This type of branding will assist the customer to differentiate between the eco-friendly and non-eco friendly products.

c. Environmental Commercials or advertisements

Just like the eco-label and eco-brands the environmental commercial are also the presentation of the phenomenon of green marketing and showcases the information regarding the usage and qualities of the products, this makes the use to fancy locations and even celebrities at times, but the idea is same as above.

Consumer Purchase Behavior

This is a point of major research that the consumers affect the environment or the environment affects the attitude of the consumers. But then again, in either of the case there is a huge amount of cost involved in it. As a matter of fact the consumer purchase behavior can be stated as the attitude of the consumer towards a particular product or service at the time of final purchase of the same. Gradually there are four types of consumer behaviors that can be stated as follows:

- a. Complex
- b. Variety Seekers
- c. Reducing tension, and
- d. Normal

There were a number of researches that have established the fact that in the current scenario customer are much conscious about the issues related to environment protection. To understand the customer is a herculean task even for the respective organizations and

researchers as well, this is because of the reason that the customer expresses the needs in different manners at different point of times.

As far as the phenomenon of Green marketing is concerned, in the current scenario the knowledge and awareness of the customers is increasing and they are reacting in the positive manner for the same.

Objective

1. To identify the attitude of the customers for the green products,
2. To judge the gap between the awareness of the customer about green products and availability of the same,
3. The level of efforts made by the organizations to make the customers aware about the green products.

Research Methodology

The study tried to explore the consumer's perception of green marketing and measure the correlation between consumer purchase behavior and green marketing tools, consumer attitude and the green concept of marketing, and consumer purchase intention and green marketing. The study applied an analytical model of investigation, a questionnaire survey and regression analysis to guide the study productively. As an applied research, the study aims at solving existing problems within the organization and individuals to make them more concerned about the concept of "Going Green".

Both secondary and primary data have been compiled and analyzed with a view to examining the research objectives.

Hypothesis

Hypothesis 1

H₁: A significant and positive relationship exists between eco-products and customer's purchase behavior.

H₀: There is no significant and positive relationship exists between eco-Products and customer's purchase behavior.

Data Analysis and Interpretation

S. no.	Particulars	Mean	Standard Deviation	Variation Coefficient
1	Satisfaction for buying products that do not damage the environment	2.79	0.41	19.25
2	Eco-Friendly products are easy to identify	2.98	0.63	20.18
3	There is a particular amount of application different in the eco-friendly and non-eco friendly products	2.34	0.72	26.91
4	Attitude towards green products is the result of fellow users	2.91	0.61	24.36
5	Attitude towards green products is the result of self-experience	2.88	0.58	19.87
6	Only the established brands can provide eco-friendly products	3.19	0.63	18.92
7	The proof of eco-friendliness should be mentioned in the respective advertisements	2.54	0.71	27.54
8	Ingredients of the products should be given in the advertisements	1.98	1.02	43.21

9	I personally use and then believe on the products	2.74	0.62	18.74
10	Green products match my lifestyle and usage	2.01	0.91	36.45

Interpretation

As can be seen from the above table that the first 5 points of the assessment present an average score of 3 at the likert scale of 1 to 5, for these particular points the respondents were strongly agreed to the point in question and the same is evident from the low standard deviation and the coefficient of variation.

Then again for the components of application of product, attitude of customer and belief of customer the responses are not equal on an average basis and the same can viewed from the large gap between standard deviation and coefficient of variation.

The above stated variation in the responses it is clear that the customer are still not in the position of identifying the products that are environment friendly and that are not, they need a certain amount of guidance for the same at the first instance.

Relationship between Consumer Behavior and corporate Beliefs for green products

Regression Statistics

Multiple R= 0.0314458

R Square= 0.00054892

Standard Error= 0.897721

N = 100

	Coefficients	Standard Error	t stat	p-value
Intercept	0.00501	0.07884	0.00210	.897741
X Variable 1	-.0892	0.079854	-0.09887	0.0988

The degrees of freedom $v=n-2=98$

Critical region at 5% is > -0.1795

The observed value of $r= 0.0314458$ falls outside the critical region

P-value is -0.0988

Result

Therefore, it can be said that the consumer behavior for eco-friendly and green products is not affected by significantly by the related environmental beliefs and the null hypothesis can be rejected and alternate hypothesis will be accepted.

Conclusion

The findings of the present study states that there is a gap between the actual and prevailing efforts of the organization to make the customer aware about the environment friendly products, the same can be seen from the interpretation of the analysis table given above. This study also focuses on the different aspects of consumer behavior related to environmental friendly products and the respective guidance of the same from the side of the marketers. Here the researcher would like to suggest that the media exposure for the green products should be increased to a certain level, so as to make it computable to the different sources accessed by the customers. This will increase the speed of the awareness spread which will again be beneficial for the organizations going green.

Then there is a gap in the minds of the customers that the 'Green' products will act as per the expectation or not, this is again the responsibility of the different related organizations and authorities to convince the customer regarding the application of the products.

The current low levels of consumer awareness about global warming, India's brands need to help raise consumer consciousness. Indian manufacturers have yet to find a market for green products, even as consumers have a low awareness of them because of the insufficient efforts made by the marketers. But by embracing the green imperative, and investing in green initiatives and consumer education, Indian brands can break this vicious cycle.

Overall, it is clear that the Indian market for greener products is under-exploitation by marketers within consumer groups with pro-environmental values. This finding suggests there is greater use of marketing brands to sell green products that are genuinely environmentally friendly.

References

1. Chan, R. Y. (2004). Consumer responses to environmental advertising in China. *Marketing Intelligence & Planning*, 22(4), 427 - 437.
2. Elham Rahbar, N. A. (2011). Investigation of green marketing tools' effect on consumers' purchase behavior. *Business strategy series*, 12(2), 73-83.
3. Grant, J. (2007). *The Green Marketing Manifesto*. John Wiley & Sons, Ltd.
4. Kinoti, M. W. (2011, December). Green marketing Intervention Strategies and Sustainable Development: A Conceptual Paper. *International Journal of Business and Social Science*, 2(23), 263-273.
5. Kotler, P. (2012). *Marketing Management, millenium edition: Custom Edition for University of Phoenix*. (10 ed.). New Jersey: Pearson Custom Publishing.
6. Kotler, P. T., & Armstrong, G. (2013). *Principles Of Marketing*. pearson education.
7. Polonsky, M. J. (2011, December). Transformative green marketing: Impediments and opportunities. *Journal of Business Research*, 64(12), 1311–1319.
8. Babita Saini(2010), Green marketing and its impact on consumer buying behavior, *International Journal of Engineering Science Invention*, Volume 2 Issue 12, PP.61-64
9. Chen, T.B., & Chai L.T. (2010). Attitude towards environment and green products: Consumers perspective. *Management Science and Engineering*, 4 (2), 27-39
10. Jungermann W. C, & Jungennatm C. E., (2010). *Reconsider-Executive Summary*.

“An Impact of Physical Factors on Job Satisfaction of Supporting Employees in Selected Universities of Rajasthan”

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Abstract

HRM is a term used to refer the philosophy, policies, procedures and practices related to the management of people in an organization. Today every organization has to face high competition. Therefore organizations try to do right thing at the right time. In that situation HRM plays major role to achieve organizational goals. Satisfaction is one of the major concepts in Human Resource Management. Maintaining work atmosphere is a vital aspect of HRM because the performance of an individual in an organization is largely driven by the work atmosphere or work culture that prevails at the workplace. A good working condition is one of the benefits that the employees can expect from an efficient human resource team. A safe, clean and healthy environment can bring out the best from an employee. A friendly atmosphere gives the staff member's job satisfaction as well. Employee satisfaction is a measurement of how happy workers are with their job and working environment. Keeping high morale among workers can be of tremendous benefit to any institution, as happy workers will be more likely to produce more, take fewer days off, and stay loyal to the institution. There are many factors in improving or maintaining high employee satisfaction, which wise employers would do well to implement. Job satisfaction is not the same as motivation, though it is clearly linked. Job design aims to enhance job satisfaction and performance; methods include job rotation, job enlargement and job enrichment. Other influences on satisfaction include the management style and culture, employee involvement, empowerment and autonomous work groups, pay, work responsibilities, variety of tasks, promotional opportunities, the work itself and` the co-workers .This Research Paper focuses on Understanding the relationship between Physical factors on Employee satisfaction.

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Keywords: Job Satisfaction, Physical Factors & Employee Satisfaction

Introduction

Happy workers are productive workers and productive workers are likely to be happy. Employee job satisfaction is essential to face the dynamic and ever-increasing challenges of maintaining productivity of the organization by keeping their workforce constantly engaged and motivated. Furthermore, environmental pressures, rising health costs and various needs of the workforce also pose a challenge for the management. This could be overcome by creating a work environment that maintains employee job satisfaction as well as motivates people towards exceptional performance at the workplace achieving work-life balance. Employee satisfaction refers to a collection of positive and/or negative feelings that an individual holds toward his or her job. Job Satisfaction is a part of life satisfaction. It is the amount of pleasure or contentment associated with a job. Job Satisfaction is an emotional response to a job. Job satisfaction is one of the most popular and widely researched topics in the field of organizational psychology (Spector, 1997). Locke (1976) defines job satisfaction as a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences. Job satisfaction has been studied both as a consequence of many individual and work environment characteristics and as an antecedent to many outcomes. Employees who have higher job satisfaction are usually less absent, less likely to leave, more productive, more likely to display organizational commitment, and more likely to be satisfied with their lives (Lease, 1998).

There are a variety of factors that can influence a person's level of job satisfaction. Some of these factors include the level of pay and benefits, the perceived fairness of the promotion system within a company, the quality of the working conditions, leadership and social relationships, the job itself (the variety of tasks involved, the interest and challenge the job generates, and the clarity of the job description/requirements). The happier people are within their job, the more satisfied they are said to be. The concept of job satisfaction has gained importance ever since the human relations approach has become popular. Job satisfaction involves complex number of variables, conditions, feelings and behavioral tendencies.

Literature Survey

As indicated by Endang Pitaloka et.al [3] in the article titled "The effect of workplace, work fulfillment, association duty on OCB of inward examiners" [3] clarifies about Internal Auditor working in an association who screen and assesses the dangers that are being overseen. The organizations that are being represented and inside procedures that are working. The significance of their job required inward reviewer to give their best execution to the necessities of organization. Media transmission industry has discovered hard to hold great inward evaluators. The organization looks for some accomplished and qualified interior examiner from an adversary organization, with an offer of a superior compensation bundle. In the event that the organization can't hold the best ability, it will cause issues in the execution and upper hand. This demonstrates the significance of representative's responsibility and worker execution. There is requirement for the association to think of procedures to hold representatives and enhance the organization's execution. The motivation behind this examination is to investigate how the workplace as predecessor cause works fulfillment and authoritative responsibility of interior reviewers, and how work fulfillment, hierarchical duty affect hierarchical citizenship conduct of inner

evaluators. Around 162 study surveys were appropriated by utilizing face to face and email. The information was handled utilizing Path Analysis.

The outcomes demonstrated that the workplace is predecessor of occupation fulfillment and authoritative responsibility of inner evaluators. Employment fulfillment and hierarchical duty fundamentally influence authoritative citizenship conduct of interior inspectors. A helpful workplace prompt employment fulfillment and association duty. Employment fulfillment and authoritative duty urge inner inspectors to indicate hierarchical citizenship conduct in accomplishing association objectives. This paper could contribute on HR methodologies and arrangement. The outcomes, in any case, couldn't be summed up to every interior examiner in Indonesia media transmission industry since the examination was led in Jakarta only. The creator additionally discloses that every association needs to have workers with fitness as per the requirements of their association, focused on the association and have superior. Subsequently any organization vieing for the best workers. Organizations need to accomplish something to pull in potential workers. Something that should be possible to draw in potential representatives is to build up a charming workplace.

On the off chance that the earth is harmonious, weakness, tedium and fatigue are limited and work execution can be expanded. Workplace is one of the exhaustive ideas since it incorporates parts of physical, mental and social working conditions. The workplace can have a positive or negative impact on mental and welfare of representatives. In associations with high occupation requests and high weights tend to make representative pressure. Stress can negatively affect worker profitability and execution for the association. Troublesome workplace would make the representatives are not cheerful and are not happy with the association. Association looks to dispose of the negatives of the workplace so representatives are happy with their works.

Occupation fulfillment demonstrates how much a worker prefers his function; work fulfillment is a feeling of solace and positive experience that a representative has identified with his activity. Occupation fulfillment can influence work conduct and association execution. Workers who are fulfilled will have elite in this way enhancing hierarchical execution. Making a steady workplace is a need for associations who need work fulfillment. Occupation fulfillment is the key to productivity and worker execution, jobsatisfaction also explain the behaviour of employees [3].

As indicated by the article by George Kafui Agbozo et.al. Titled "The Effect of Work Environment on Job Satisfaction: Evidence from the Banking Sector in Ghana" clarifies that the impact of workplace on employment fulfillment with the focus on a trader bank in Ghana. Among different destinations, the paper set out to find out the effect of physical and mental condition on representatives' execution, to know the general fulfillment level of representatives in the bank and study whether physical, social and mental workplace influence work fulfillment. Stratified testing strategy was received to choose the example for the investigation. Poll was utilized as the examination instrument while Statistical Package for Social Science (SPSS) was utilized to break down the information assembled from the field consider.

Discoveries of the investigation showed that a large portion of the staff at the bank is happy with their workplace particularly the physical vibe. The paper reasons that the earth significantly affects representatives' fulfillment. The discoveries of the paper accentuate the requirement for administration to enhance the workplace of representatives to support

efficiency [4]. The creator feels free to clarify about the significance of workplace in occupation fulfillment can't be disparaged. For what reason do some vibrate great with their activity plans and achieve superior to other people? While some readily anticipate the following day's exercises at work; others feel obfuscated with the unimportant idea of the work ahead and the following day's exercises. A few investigations have been directed to investigate the connection between representatives' level of work fulfillment and life span to worker execution. Indeed, every one of these investigations made them thing in like manner, in this way, worker fulfillment connects with representatives' workplace. Exorbitant execution throughout the years has been of prime worry to industrialists, dependable representatives, and social laborers, modern and hierarchical analysts, among others. The origination of specialists' fulfillments with their employments was initially created from the investigation by Elton Mayo in the late 1920s and mid 1930s at Chicago, a Western Electric Company plant called Hawthorne.

The consequence of the examination exposed that the working practices of specialists can be affected upon by their opinions. Social associations alongside mental components are the center bases of happiness with one's activity or fulfillment with work and effectiveness in staff. Occupation fulfillment has turned into the column on which execution of workers is pivoted. The most critical objective among others of an association is to debilitate the potential outcomes of getting the best worker execution with the end goal to achieve set destinations [4]. The workplace is a standout amongst the most significant elements which impact the level of fulfillment and in addition inspiration of its representatives. As per social, authoritative and physical variables are stimulus for undertaking and movement which therefore affect the execution of specialists'. The profitability of representatives is resolved too much by the earth in which they work. The most extreme critical observational proof which shows the weakening working states of an association needs to do with the truncated activity fulfillment rate. [4]

As indicated by George KafuiAgbozoet.al., from the paper titled "The Effect of Work Environment on Job Satisfaction: Evidence from the Banking Sector in Ghana" clarifies the significance of workplace in occupation fulfillment can't be thought little of. For what reason do some vibrate great with their activity plans and achieve superior to other people? While some happily anticipate the following day's exercises at work; others feel blurred with the insignificant idea of the work ahead and the following day's exercises. A few examinations have been led to investigate the connection between representatives' level of work fulfillment and life span [5] to worker execution [5]. Actually, every one of these investigations made them thing in like manner, consequently, worker fulfillment corresponds with representatives' workplace. Extreme execution throughout the years has been of prime worry to industrialists, dependable representatives, and social specialists, modern and hierarchical clinicians, among others. The origination of specialists' fulfillments with their employments was initially created from the examination by Elton Mayo in the late 1920s and mid 1930s at Chicago, a Western Electric Company plant called Hawthorne. The consequence of the examination exposed that the working practices of specialists can be affected upon by their assumptions. Social collaborations alongside mental components are the center bases of happiness with one's activity or fulfillment with work and productivity in staff [5]. Occupation fulfillment has turned into the column on which execution of workers is pivoted. The most vital objective among others of an association is to debilitate the potential outcomes of getting the best representative

execution with the end goal to achieve set targets [5]. The workplace is a standout amongst the most vital variables which impact the level of fulfillment and additionally inspiration of its representatives.

As per [5] social, authoritative and physical variables are driving force for assignment and movement which thus affect the execution of specialists'. The efficiency of representatives is resolved too much by the earth in which they work. The most extreme critical experimental proof which shows the decaying working states of an association needs to do with the truncated activity fulfillment rate [5]. Most directors interface specialist's development from one employment to the next with better states of administrations. Notwithstanding, [5] is of the view that labourers leave on account of poor administration hones or poisonous societies.

Results & Discussion

Statement: *Understanding the Impact of Physical factors for Job Satisfaction*

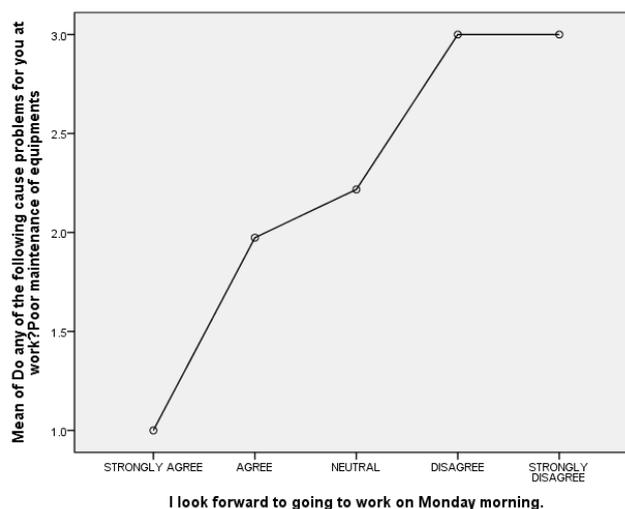
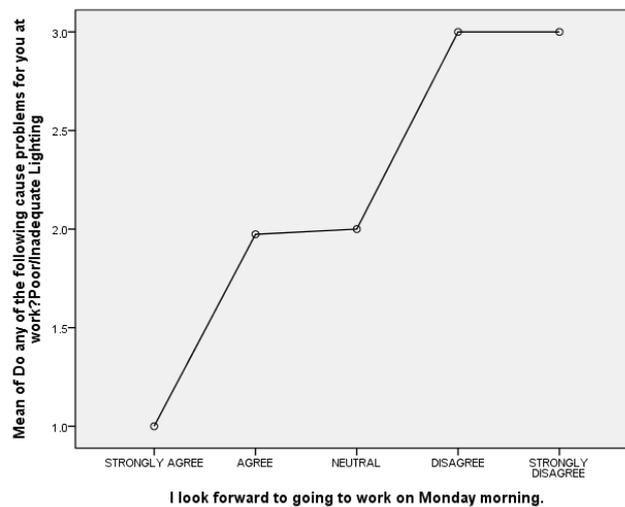
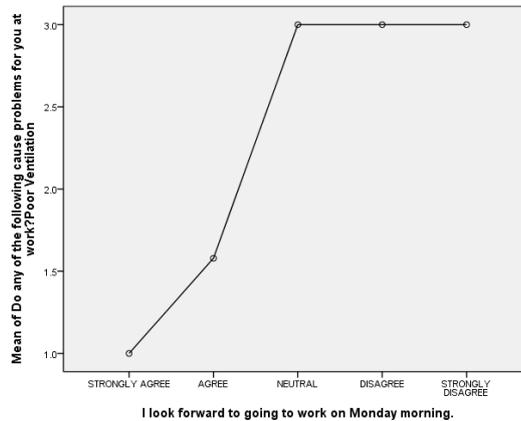
Null Hypothesis H₀: There exists no Impact of Impact of Physical factor for Job Satisfaction

Alternate Hypothesis H₁: There exists an Impact of Physical factors for Job Satisfaction

ANOVA					
		Sum of Squares	df	Mean Square	F
Do any of the following cause problems for you at work?Poor Ventilation	Between Groups	236.101	4	59.025	690.306
	Within Groups	27.789	325	.086	
	Total	263.891	329		
Do any of the following cause problems for you at work?Poor/Inadequate Lighting	Between Groups	146.097	4	36.524	4063.738
	Within Groups	2.921	325	.009	
	Total	149.018	329		
Do any of the following cause problems for you at work?Poor maintenance of equipments	Between Groups	150.313	4	37.578	833.066
	Within Groups	14.660	325	.045	
	Total	164.973	329		

ANOVA		
		Sig.
Do any of the following cause problems for you at work?Poor Ventilation	Between Groups	.000
	Within Groups	
	Total	
Do any of the following cause problems for you at work?Poor/Inadequate Lighting	Between Groups	.000
	Within Groups	
	Total	
Do any of the following cause problems for you at work?Poor maintenance of equipments	Between Groups	.000
	Within Groups	
	Total	

Means Plots



Do any of the following cause problems for you at work? Poor Ventilation * I look forward to going to work on Monday morning.

Crosstab

		Count			
		I look forward to going to work on Monday morning.			
		STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE
Do any of the following cause problems for you at work? Poor Ventilation	NEVER	81	48	0	0
	SOMETIMES	0	66	0	0
	OFTEN	0	0	69	33
Total		81	114	69	33

Crosstab				
Count				
		I look forward to going to work on Monday morning.		Total
		NEVER	SOMETIMES	
Do any of the following cause problems for you at work? Poor Ventilation	NEVER	0	129	
	SOMETIMES	0	66	
	OFTEN	33	135	
Total		33	330	

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	449.963 ^a	8	.000
Likelihood Ratio	540.927	8	.000
Linear-by-Linear Association	239.205	1	.000
N of Valid Cases	330		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.60.

Symmetric Measures					
		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	.853	.008	29.559	.000 ^c
Ordinal by Ordinal	Spearman Correlation	.905	.006	38.489	.000 ^c
N of Valid Cases		330			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

It can be Observed from the Anova Results, At 95% Confidence Level , and 5 % Error Rate , With Asymp Value = 0 , Fvalue > F Statistic , We accept the Alternative Hypothesis i.e There exists an Impact of Physical factors for Job Satisfaction.

Conclusion

An appealing and steady workplace is basic to work fulfillment. Workplace has various properties that may impact both physical and mental prosperity. A quality work spot is principal to keep laborers on their different assignment and work successfully. A decent working environment is checked by such qualities as aggressive wages, confiding in connection between the representatives and administration, value and reasonableness for everybody, and a sensible outstanding burden with testing yet achievable objectives. A composite of every one of these conditions makes the work station the most ideal working conditions for representatives to work with abnormal state of fulfillment. As a benefit arranged association, making an empowering situation for fulfilled workers is a prompt essential main concern.

References

- [1] Dr Ruchi Jain et.al., "IMPACT OF WORK ENVIRONMENT ON JOB SATISFACTION", International Journal of Scientific and Research Publications, Volume 4, Issue 1, January 2014 ISSN, pp 2250-3153.
- [2] Dr.Yogesh Jain and Renil Thomas, "Dr.Yogesh Jain and Renil Thomas", International Journal of Applied Research 2016; 2(5): 926-934.
- [3] EndangPitaloka et.al., "The affect of work environment, job satisfaction, organization commitment on ocb of internal auditors", International Journal of Business, Economics and Law, Vol. 5, Issue 2, ISSN 2289-1552, Dec. 2014.
- [4] George KafuiAgbozoet.al., "The Effect of Work Environment on Job Satisfaction: Evidence from the Banking Sector in Ghana", Journal of Human Resource Management, 5(1), pp. 12-18, 2017.
- [5] George KafuiAgbozoet.al., "The Effect of Work Environment on Job Satisfaction: Evidence from the Banking Sector in Ghana", Journal of Human Resource Management, Volume 5, Issue 1, February 2017, pp: 12-18.
- [6] Abdul Raziqa and RaheelaMaulabakhsha, "Impact of Working Environment on Job Satisfaction", 2nd GLOBAL CONFERENCE on BUSINESS, ECONOMICS, MANAGEMENT and TOURISM, 30-31 October 2014, Prague, Czech Republic, ScienceDirectProcedia Economics and Finance 23 (2015) 717 – 725.
- [7] N. Kamarulzaman et.al., "An Overview of the Influence of Physical Office Environments towards Employees", The 2nd International Building Control Conference, SciVerse Science Direct, Procedia Engineering 20, pp 262-268, 2011.
- [8] Sze Yin Koh, Boon HengTeh, Ong Tze San and Amalina Abdullah, "The Impacts of Physical, Psychological, and Environmental Factors on Employees Job Satisfaction among Public Accounting Professionals in Malaysia", Proceedings in the 2nd International Multidisciplinary Conference 2016, November 15th, 2016, UniversitasMuhammadiyah Jakarta, Indonesia.
- [9] SitiZawiah Md. Dawal&ZahariTaha, "The Effect of Job and Environmental Factors on Job Satisfaction in Automotive Industries", International Journal of Occupational Safety and Ergonomics, International Journal of Occupational Safety and Ergonomics (JOSE) 2006, Vol. 12, No. 3, pp. 267–280.

- [10] R. B. Briner et al., "Relationships between work environments, psychological environments and psychological well-being", *Occup. Med.* Vol. 50, No. 5, pp. 299-303, 2000.
- [11] According to Asigele Oswald et al., "The Effect of Working Environment on Workers Performance: The Case of Reproductive and Child Health Care Providers in Tarime District", November 2012.
- [12] Kyle Shobe, "Productivity Driven by Job Satisfaction, Physical Work Environment, Management Support and Job Autonomy", *Business and Economics Journal*, Volume 9, Issue 2018.
- [13] David McGuire, "The impact of physical environment on employee commitment in call centres: The mediating role of employee well-being", *Team Performance Management: An International Journal* Volume 15, Issue 2.
- [14] Naser Hoboubi, "The Impact of Job Stress and Job Satisfaction on Workforce Productivity in an Iranian Petrochemical Industry", *Elsevier*, vol 8, Iss.1, pp. 67–71, March 2017.
- [15] Demet Leblebici, "Impact of Workplace Quality on Employee's Productivity: Case Study of a Bank in Turkey", *Journal of Business, Economics & Finance*, Vol.1 (1), 2012.
- [16] A.R. Ismail et al., "A Survey on Environmental Factors and Job Satisfaction Among Operators in Automotive Industry", *American Journal of Applied Sciences* 7 (4): 556-561, 2010 ISSN 1546-9239.
- [17] Cynthia Nanzushi, "The Effect of Workplace Environment on Employee Performance in the Mobile Telecommunication Firms in Nairobi City County", A Research Project Submitted In Partial Fulfillment of the Requirements for the Award of the Degree of Master of Business Administration University of Nairobi.
- [18] Nina Munira Naharuddin and Mohammad Sadegi, "Factors of Workplace Environment that Affect Employees Performance: A Case Study of Miyazu Malaysia", *International Journal of Independent Research and Studies - IJIRS*, ISSN: 2226-4817; EISSN: 2304-6953, Vol. 2, No.2 (April, 2013) 66-78.
- [19] "The impact of the physical workplace on performance: an introduction", *Sodexo-Quality of Life Services*.
- [20] Deepak Bangwalet et al., "Workplace Design Features, Job Satisfaction, and Organization Commitment", *Journal of workplace rights*, SAGE Open, pp. 1–12, July-September 2017

Difference between the constraints faced by working and non working women's Decision Making

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Abstract

In the family both, working and non working women play a pivotal role. Women's have to face so many constraints to manage their house properly. Many of the researches have proved this. In this study the researcher interested to find out the constraints faced by the working and non working women's decision making. The main objective of this study is to examine the different constraints faced by working and non working women in their family. This study compared working and non working women in term of constraints in decision making. For this purpose, 160 women were chosen from Allahabad city. Among these 80 were working and 80 were non working women. Both qualitative and quantitative methods were employed in this study. The result showed that working women less constraints faced to take decision especially in money matters rather than non working women. The study also showed that most of working women encountered a number of constraints in managing between family and job responsibilities. Hence, it can be concluded that the non working women had less constraints when compared to working women.

Key words: Decision Making, Constraints of working and non working women

Introduction

In our country women play a pivotal role in the family and the community, shouldering all the responsibilities providing for the needs and comforts of the male members of the family and the children, running the household, managing within the limited budget. Women contribute more than half of the duties and responsibilities of the family but are hardly empowered to participate in decision making. Decision making has been measured in terms of participation of women in household responsibilities. Women empowerment in

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society and family are closely linked to decision making influence. From time immemorial women have been associated with domestic lives, where as politics and livelihood generation is often viewed as male dominated activities.

Gradually with the passage of time, the concept of “working women” came into existence. Women are compelled to leave the security of their home due to economic necessity and hence they do not have enough time to look after their children and family. The traditional role of a housewife has gradually evolved into the dual and more fulfilling role of a working woman and housewife. Employment in addition to enhancing economic independence and occupational status of women exposes her to new relationship and situation in the world of work and she develops capacity to assert herself and take decision in family affairs and also helps her to effectively participate in decision making an all domestic front. Bala and Monga (2004)

Rekha Verma and Ranju Pandey (2017) A large percentage of the working and nonworking women used to take joint decision with their spouse in children matters, personal matters and household matter but in the aspects of like religious practices, expenditure aspects, purchase of items and hygiene practices working women were taking independent decisions. A significance difference was found independent decision of working and nonworking women in taking joint decision with their spouse.

A.M.Sultana et.al. (2013) Working women enjoyed greater power and freedom compared to non working women on the personal affairs. Yadav et.al. (1998) Dual value system creates additional strain on the employed women. Working women have to face criticism and opposition from family members and society. Lack of job security, maternity and medical leave facilities, job guarantee, cuts in wages if absent from job, long hours of work were major constraints of a working women. The problems of women workers in the work spot are more complex than rural women in general. Though they play multiplies role at the work spot, they are seldom recognized and rewarded.

Anjula et. al. (2004) working women were significantly more stressed. During the period of stress, non working respondents complained of decreased working capacity. Majority of respondents in both categories were using stress management technique.

There is a general impression that working outside the home improves participation in decision making activities. Working women had more roles in decision making at household levels and she can participate wisely to take decision in any field of household activities. On the other hand it may also happen that the housewives because of better time and specialization in different household activities are likely to wield higher influence in decision making on the home front.

The interface between the work place and the family life is more stressful for the women who work outside the home and they have to perform both familial as well as professional roles. The problem of women who combine the different roles of a wife, a mother and working women are multiple, which can be categorized under different needs as physiological problems, adjustment problems, social problems and economic problem. Although more and more women are coming out in search of employment and their families also need their income but the attitudes towards women and their role in the family has not undergone much change. Even today, looking after the family and children is generally perceived to be primary responsibility of the women. In addition, this perception that they alone are responsible for the domestic work, leads to a feeling of guilt

when they are not able to look after the children or the family due to their official work, often resulting in emotional disorders.

Working and non working women have little bit different role in the family. Working women have self independent, emotionally strong, financially supporting of their family, able to take her own decision, but working women faces more constraints in some fields like to manage their family and job, child rearing, participation in social activities, spending time with family, not enough time for pursue own interest. On the other side non working women have enough time for family, to make visit to their friends and relatives, moral supporting of the family, pursue own interest, take care of kids properly, manage their home in better way, but she still faces constraints in taking decision in money matters, in personal matters, in children matter. Most of the studies focus on serious constraints faced by the working women related to threat to job security, sexual harassment, wage discrimination, child care, and so on (Eswari., M 2009; Gavin E, Andy B and Tia K 2009). The study, therefore, attempts to identify constraints related to personal affairs and family management faced by working women when they perform dual responsibilities such as domestic work and the office work.

Objective

To explore the difference of constraints faced by working and non working women's decision making.

Methodology

The study was conducted during the year 2017-18 in Allahabad district. The main focus of this research was to determine the difference of constraints faced by working and non working women's decision making.

Sample

A purposive sampling was taken for the investigation. 160 women are selected randomly.

Data Collection

The present study based on primary data. The data in line with the objective were collected with the help of questionnaire interview schedule. In this study, a Likert scale has been used to examine constraints faced by working and non working women in their families. In this format the response were carried out in terms of (1) disagree (2) strongly disagree (3) either agree or not agree (4) agree (5) strongly agree are presented the values of 1-5 respectively.

Tool and technique

The study is both qualitative and quantitative in nature.

Analysis

Both descriptive (percentage) and inferential (chi-square) statics were used for data analysis. Results on the variables were presented with cross tabulation.

Result and discussion

The result of the investigation carried out, are presented through summary tables.

TABLE- I: SOCIO-ECONOMIC AND DEMOGRAPHIC INFORMATION OF THE RESPONDENTS

Categories	No.	Percentage
Age(in Years)		
25-30	29	18.1
31-35	73	45.7
36-40	58	36.2

Total	160	100.0
Education		
Primary	28	17.5
Secondary	75	46.8
Higher	57	35.7
Total	160	100.0
Occupation		
Housewife	98	61.2
Working women	62	38.8
Total	160	100.0
Family Types		
Nuclear	94	58.6
Joint	66	41.4
Total	160	100.0

The table 1 focuses on the background information of the respondents it provides the detail picture about age, occupation, education and so on. This study indicates that half of the women (45.7 %) belonged to the age of 31-35 while (36.2%) of the respondents are 36-40 age group and rest of the respondents (18.1%) belongs to the age group of 25-30. On the other hand, the highest (46.8%) women completed secondary level of education, (35.7%) completed higher and 17.5% completed primary education. Education here plays important role as it is considered as independent variable for this study. In the category of occupation the large number of respondents (61.2 %) was housewife and 38.8% was working women (service holder). Most of the women (58.6%) lived in nuclear family and rest of the 41.4% lived in joint family.

TABLE- II: Constraints faced by working and non working women

Item	Working women (N=80)							Non working women (N=80)						
	1	2	3	4	5			1	2	3	4	5		
	%	%	%	%	%	N	(%)	%	%	%	%	%	N	(%)
Personal matters	5.8	15.4	14.8	37.2	26.8	80	100	42.4	41.5	6.3	7.7	2.1	8.0	100
Social matters	5.9	12.0	16.7	25.2	40.2	80	100	55.9	35.6	2.7	4.8	1.0	8.0	100
Family matters	2.4	14.8	7.2	58.1	17.5	80	100	55.9	28.8	8.2	4.2	2.9	8.0	100
Children matters	3.9	1.3	18.2	38.8	37.8	80	100	35.1	36.9	9.6	13.9	4.5	8.0	100

Table II shows that majority of the working (37.2 & 26.8 agree and strongly agree) women expressed about time constraints for personal matters while majority of non working (42.4 & 41.5) women disagree and strongly disagree for the similar aspects. Further, in the second statement, more than half of working women (25.2 & 40.2 agree & strongly agree) facing constraints about social matters, whereas a small number (4.8 & 1.0) of non working women are facing such constraints. These result shows that working women have limited social contact as they are mostly busy with their heavy work schedule. On the other, non working women have enough time to make visits to their friends and relatives frequently.

Results are presented in the above table shows that a higher percentage of non working women (55.9 & 28.8 disagree and strongly disagree) expressed that they could not perform their domestic work properly. On the other hand the majority of working women (58.1 & 17.5 agree & strongly agree) accepted that they could not perform domestic work properly due to lack of time and fatigue. Results also shows that majority of the working women are facing constraints in their children caring. Table II highlights that about (38.8 & 37.8%) working women agree and strongly agree that they are facing big problem when their children fall sick. whereas a small number of non working women (13.9 & 4.5%) are facing the similar constraints.

Conclusion

The following conclusion was drawn on the basis of the analysis of data. Though the many constraints take places on decision making of working and non working women in their families. The factor time play a decisive role here. The study explores the constraints faced by working and non-working women related to their personal, social family and children matters. It was noted that most of working women are facing constraints related to social visits, personal affairs, feeling fatigue and children sickness compared to non-working women. Most of working women have limited social contact as they are mostly busy with their heavy work schedule. Due to the influence of job (work), working women are not getting more time to spend for personal care, social activities, family management and children caring. The present study shows that time, fatigue, stress have significant effect in explaining the variance in family decision making. Although working women face various constraints in managing their families compared to non-working women, there is a great importance of women work especially in low income families. Given the importance and demands of women work, especially among low-income families, the study suggests the implications of family friendly policy and its practice to supports the working women who are facing constraints in their families. There is need to recognize such factors and problems and study them in depth for seeking promising solution and to give women the worthy attention that they richly deserve.

References

- Z. Ullah, K. Z Kakar, & Dr. A. B. Khilji, "Effect of Female Education on Family Size in Pakistan: A Case Study of Quetta City". *Journal of International Academic Research*, Vol.11 (2), 2011.
- Sethi, R.M. (1998), "Status and power of working women within the family." A test of Marxisan perspective. *Journal of Sociological Studies*, Vol: 8
- B. Erci, "Women's Efficiency in Decision Making and their Perception of their Status in the Family", *Public Health Nursing*, Vol. 20 (1), pp.65-70, 2003.
- Gore, M.S. 1988. *Education for Women's Equality*. New Delhi: Centre for Women's Development Studies.
- Kiani M, *Sociology Study*, 2012, 2 (6), 417. [3] Sultana AM, *Journal of Applied Sciences Research*, 2011, 7 (1), 18.
- G. Backer, "On Kinship Structure, Female Autonomy and Demographic Behavior in India", *Population and Development Review* Vol. 9, pp. 35-60, 1998.
- Malhotra, Anju and Mark Mather, 1997. "Do Schooling and Work Empower Women in Developing Countries? Gender and domestic decisions in Sri Lanka." *Sociological Forum* 12(4): 599-630.

Acharya, Y. (2008) Women's education and intra-household autonomy: Evidence from Nepal. *Journal of Development and Social Transformation*, 5, 5-12. 2.

Singh Prachi and Gupta Shilpi, (2013), "A Conceptual Study on Women Empowerment-Facts and Realities", *IOSR Journal of Humanities and Social Science (IOSR-JHSS)* Volume 11, Issue-4(May-Jun 2013), PP 54-63 e-ISSN: 2279-0837, www.Iosrjournals.Org https://www.researchgate.net/publication/228505951_Factors_Effect_on_Women_Autonomy_and_Decision-Making_Power_within_the_Household_in_Rural_Communities [accessed Oct 02 2018].

Saleem S, Bobak M. Women's autonomy, education and contraception use in Pakistan: a national study. *Reprot Health*. 2005; 2:8

Banerjee, P. (2005) "Rights and Representation: Debates over Women's Autonomy in India." retrieved from: <http://www.mcrg.ac.in>.

Role of Product Attribute on Consumer Behavior towards Online Shopping of Consumer Durables Goods

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Abstract

Consumer buying behavior depends on variety of factors such as the price factors and the non-price factors. The present paper focuses on consumer online buying behavior towards consumer durable goods on the basis of non price factor which include product attributes. The findings of the research revealed that product attributes play an important role in the online purchase of consumer durable goods like TV, Mobile, Laptop, washing machine. The major product attribute includes quality of the products, product feature like color, design, finish, durability, warrant, after sales services etc. Thus marketers should focus on these factors to influence consumer buying of consumer durable goods for online selling.

Key Words -: Online Shopping, Consumer Behavior, Product Attribute, Durable products

Introduction

1. Consumer Behaviour

The basic purpose and philosophy of marketing is delivering value to consumer. It means providing goods worth their price and the benefits derived by the consumers. It means utility of the product is more than the price. Therefore, the marketer must find out what is meant by value to a customer and to know this it is essential to understand consumer behaviour and the process of buying or buying decision making. In other words, the task is to find out what makes consumer buy a particular product again and again why he buys a product or service. Why he prefers one product over other product and what is the entire process of making buying decisions. It also means why consumer do not buy some products or brands or prefer some specific brand over the other brands.

Thus marketers can create value to the customer only when they understand what customer want and what is the consumer behaviour so that the same value they can build in the product or services and communicate the same to the consumer through advertising and

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branding and delivering the same to the consumers. The entire marketing planning and marketing strategy with respect to product, price, place and promotion is made on that basis.

2. Online Shopping

There is a growing trend towards online shopping in India over the period of time. Even when consumer buy offline they check the details of the products online to fine out any offers and price benefits. The rapid rise of online shopping can be attributed to rapid increase in the number of internet in the country as India ranks second in the world in number of internet after China. Further consumers see the convenience of buying and online shopping provides an easy access to the products and services. Consumers also get offers and discounts for buying online. There is rapid increase in the number of online sellers or marketers which has created stiff competition in the market and this has benefited the consumers in getting better quality products at lower prices.

3. Product attributes

One of the important determinants of consumer perception is the quality of the product as perceived by the consumer. Quality is a relative term and it is in the context of various product features like colour, design, size, finish etc. However very often consumer may not judge the quality of the product on the basis of physical features. This is due to the fact that the physical features may not be so distinct or differentiating and even if the features differ consumer may not be in a position to judge or evaluate which features are superior or inferior in the products or brands. Hence consumer may judge the quality of the product on the basis of some external factors which are visible to him such as colour, size, finish, price, brand name, advertisement publicity, promotion, type of store etc. For example, soap may be considered on the basis of colour, size, fragrance, and packaging. There are also intrinsic factors about the quality of the product which are related to the use of the product or functional parameters. For examples while buying mobile or laptop consumer also consider various technical and functional parameters of the product.

Thus quality of the product is judged by a consumer on the basis of external as well as internal factors. These factors influence consumer perception and product value. However, quality is subjective as it is linked to consumer thinking about the product and its usage. Quality is the conformance to specification and fit to use. The specification differs from product to product itself. Hence which product range consumer wants to buy the product is also important. It is for this reason marketers segment the products differently for different consumers on the basis of economic and non-economic factors.

4. Consumer durables goods

Goods can be classified as perishable goods and durable goods. Consumer durable goods include all types of goods purchased by the consumer such as TV, Mobile, Laptop, Washing machine, furniture, Air conditioner, etc. However, the present research has focused only on Air conditioner, Mobile, Laptop and refrigerator and that too online purchasing. Most of these goods are high priced items and generally used by all member of the family.

Need of the Study

Marketers in order to satisfy and delight customers must understand the needs and choices of the customers which are changing fast. The study of online consumer behavior will be useful to the marketers in making their marketing strategies effectively with respect to

product strategy, price strategy, place strategy, promotion strategy. It will provide consumers value for money and greater satisfaction. Consumer behavior keeps on changing from time to time and marketers must continuously study consumer behavior so as to be successful in marketing their products.

Literature review

- 1) Bhagaban Das, Sangeeta Mohanty and Nikhil ChandraShil (2009) evaluated the various factors which influence consumer purchasing decision about consumer durable goods such as TV .Consumer today get variety of choice at the market place as lot of domestic as well as foreign brands are available in the market. Consumer purchase decision are influenced by many factors such as technical features, product quality, price factor, word of mouth, influence of family members etc.
2. Chandrasekaran Kathiravanaa, Natarajan Panchanathamaa and Sivasundaram Anushanb (2010) studied the importance of product brand on consumer buying behaviour. Consumers get a lot of information from the word of mouth publicity and market about the products and brands and products attributes. They prefer to buy branded goods having good product attributes.
3. Dr. Ansir Ali Rajput, Sabir Hussain Kalhoro (2012) evaluated the impact of price factor and quality of the product on consumer purchase decisions. They found that price factors are given more importance than quality factors. This is truer in case of lower income group people. Further consumers get variety of choice in the market and there is stiff competition and as a result they get competitive offers from the sellers.
4. Philip Kotler and Kelvin Lane Keller (2009) describe the term consumer behaviour and the various factors affecting consumer buying decisions. Consumer's behaviour depend on variety of factors such as demographic factors, economic factors, social factors, psychological factors etc. Further consumer behaviour is changing continuously over the period of time. Kotler Philip & Keller Kevin Lane. Marketing Management. New Delhi Prentice Hall of India, 2009
5. **J. Paul Peter and Jerry C. Olson also evaluated the term consumer behaviour in their book** "Consumer Behaviour and Marketing strategy," and found that the term is highly dynamic. It deals with the emotions and feeling of the individual consumers. Hence marketers should understand the pulse of consumer behaviour so that they can effectively target their products and services to satisfy the needs of the consumers. This is most challenging and difficult.

Objective

- (1) To study the effectiveness of products attributes on consumer online buying behaviour of consumer durable goods

Hypothesis of the study

1. H0 -: There is no influence of product attribute for online shopping consumer durables goods

H1 -: There is influence of product attribute for online shopping consumer durables goods

Research Methodology

The present research is descriptive as well as casual research. It is based on primary data as well as secondary data. The secondary data was collected from the available literature review on the subject while the primary data was collected from consumers with the help of a structured questionnaire which was personally canvassed among the consumers. The sampling method was non random sampling ie convenience sampling or judgement

sampling. Hypothesis was framed for the research which was tested with the help of data collected for their validity. The data was analyzed with the help of statistical tools and techniques.

Sample design

The size of the sample was 500 consumers who generally make online purchasing. It included male as well as females though the percentage of male was much higher than female

Data Collection

This research study is primarily an empirical study on the consumer behavior relating to selected consumer durables. The researcher collected information through primary and secondary data. Structured questionnaires for consumers were constructed after an extensive review of textbooks and the existing literature on response inducement, and relevant literature in the field of online shopping & consumer behavior. The secondary data has also been collected from different sources of journals, magazines, annual reports, internet; books related to topic, etc. the data analysis has been conducted with the following methods.

The questionnaire was closed-ended questions using five-point Likert scale statements (1 = strongly disagree; 5 = strongly agree). It's easy for respondents to understand and answer the question.

- 1. What is the maximum amount you like to spend online for purchasing consumer durable goods?

Amount Spending	Less than Rs. 10000	Rs. 10000 to Rs.20000	Rs. 20000 to Rs. 30000	Rs. 30000 to Rs. 40000	Rs. 40000 & above
No of Response	231	136	70	38	25

From the above tabel it can be observe that maximum responses like to spend less than 10,000 Rs for online shopping, followed by 136 responses who would like to spend 10k to20k. There are 25 responses who would like to spend more than 40k for online shopping of consumer durables goods.

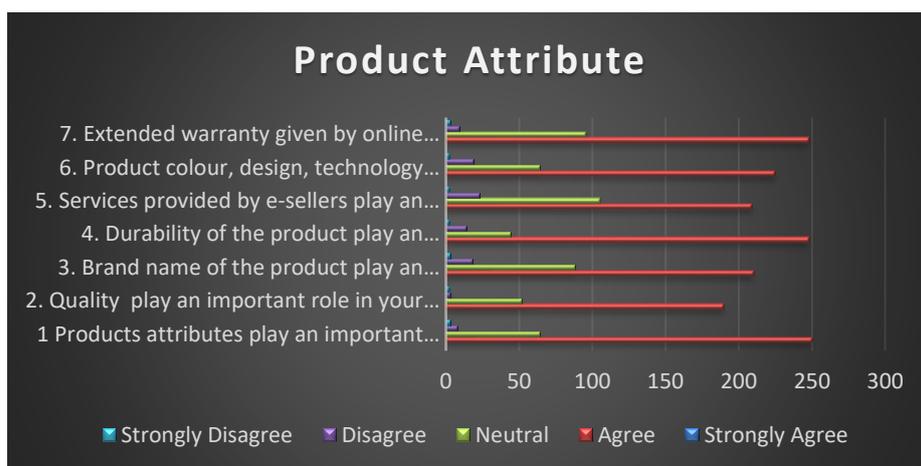
- 2. Prior purchasing online does you go to a retail store to check and touch & feel the product

1 Yes	341
2 No	159

It was reported by 341 consumers that they visit local retail stores to check the product and get more information. This covers 68.2% of the respondents. The remaining consumers i.e. 159 responded negatively to this question accounting for 31.8% of the total. This indicates that consumers have the habit of personally seeing the products before making final purchasing. This also depends on the nature of the products. Further there are consumers who want to check the off line and online prices before making actual shopping.

3. Product Attribute

	Products attributes play an important role in your online consumer durables buying decision	Quality play an important role in your online consumer durables buying decision	Brand name of the product play an important role in your online consumer durables buying decision	Durability of the product play an important role in your online consumer durables buying decision	Services provided by e-sellers play an important role in your online consumer durables buying decision	Product colour, design, technology play an important role in your online consumer durables buying decision	Extended warranty given by online portal play an important role in your online consumer durables buying decision
Strongly Agree	175	253	181	192	161	190	144
Agree	250	190	210	248	209	225	248
Neutral	64	52	88	44	105	64	96
Disagree	8	3	18	14	23	19	9
Strongly Disagree	3	2	3	2	2	2	3



It can be seen from the above table that 175 consumers strongly agree that product attribute play an important role in their buying online. This accounts for 35 % of the total. 250 consumers (50%) of the total also agreed that product attributes are important. Only 11 consumers out of 500 disagree or strongly disagree that product attributes are important. This percentage is negligible. Thus majority of the consumers (85%) agreed that product attributes are important in buying decisions.

It can be seen from the above table that quality of the product plays an important role in the purchase of consumer durable goods. 253 consumers strongly agree with this accounting for 50.6% of the total. Another 190 consumer agree with this accounting for 38% of the total. Thus almost 88% of the consumer considers quality as the major factor influencing the purchase of the products. 52 consumers were neutral to this and 3 consumers disagree and only 2 consumers strongly disagree to this.

It can be seen from the above table that almost 78% of the consumer consider brand as the important determinant of the online purchase of consumer durable products. 181 consumers

strongly agree to this and 210 consumers agree to this.88 consumers were neutral and remaining 21 consumers disagree or strongly disagree with the importance of brands.

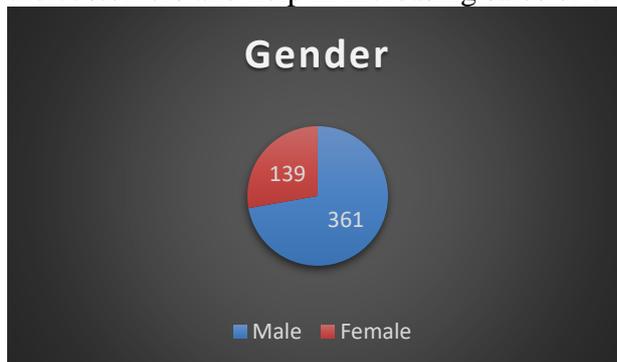
People also pay higher price for branded products.

It can be seen from the above table that majority of the consumers agreed that durability of the product play an important role in the purchase of the products. In this case in fact all the products are durable in nature.in this case durability implies the product which has long useful life or which gives better utility in terms of usage.248 consumers agreed to this accounting for 49.6% of the total consumers.192 consumer s strongly agreed to this accounting for 38.4 % of the total.

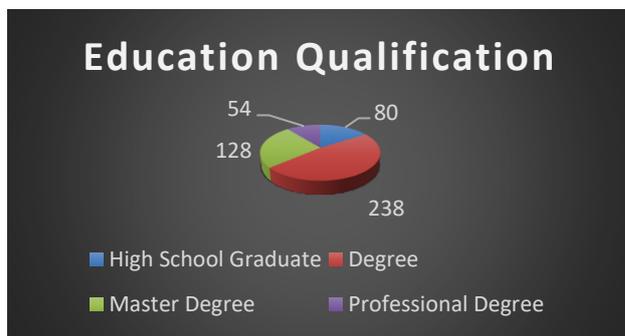
It can be seen from the above table that 209 customers agree to this that the services provided by the sellers play an important role in the purchase of online products. This account for 41.8% of the total responses.161 customers strongly agree to this accounting for 32.2% of the total. Thus more than 74% of the buyers consider services provided by the sellers as an important factor in their purchase decisions.105 consumers are neutral to this, accounting for 21% of the total. Only 5% of the respondents disagree or strongly disagree to this which is not significant.

It can be seen from the above table that 190 consumers strongly agree to the role of colour, design and technology as the influencing factor in their purchase decisions. It accounts for 38% of the total. Another 225 consumers agree to this which is 45% of the total consumers. Thus more than 83% of the consumers pointed out the importance of these factors in the purchase decisions.

It can be seen from the above table that 144 consumers strongly agree that extended warranty help in the online purchase of the products. This is 28 % of the total. Another 248 consumers agree to this which is again 49.6% of the total. Only 19.2% consumers are neutral to this and 2% disagree to this. Thus warranty given by seller is an added service to the customers and help in increasing sales of the products.



It can be seen from the table that out of 500 consumers 361 were male and remaining 139 were female. The percentage of male was 72.2 while the percentage of female was 27.8 %. Thus majority of the sample respondents were male.



It can be seen from the above table that 80 consumers were high school passed out accounting for 16 % of the total. 238 consumers were graduate accounting for 47.6% of the total. About 128 consumers were post graduate accounting for 25.6% of the total. Remaining 54 consumers were professionals accounting for 10.8 % of the total. Thus majority of the sample households were literate.



It can be seen from the above table that 155 consumers were in the private jobs accounting for 31 % of the total sample. Only 20 consumers were in the government jobs accounting for 4% of the total. 54 consumers had their own business accounting for 10.8% of the total. The remaining 271 consumers were in some other occupation accounting for 54.2% of the total

H0 -: There is no association between online shopping of consumer durables goods and Product attribute

H1 -: There is an association between online shopping of consumer durables goods and Product attribute

		Behavior	
SCR_AB Attributes	Product	Pearson Correlation	.636**
		Sig. (2-tailed)	.000
		N	500

As result show that person correlation between E-coupon and consumer behavior towards online shopping of consumer durables product is 0.636. It shows that Product Attribute has a greater impact on buying behavior of consumer. Their significance level is less than 0.05

so; we have to accept the alternative hypothesis that there is an association between online shopping of consumer durables goods and Product attribute.

Summary and Conclusion

There is an increasing trend for online shopping in the country and more and more consumers are shifting from offline to online. The role of product attribute is quite significant in the purchase decisions of the consumer for consumer durable goods like Mobile, Laptop, air conditioner and refrigerator. Though majority of the consumers buy online but in case of consumer durable goods consumer still prefer offline shopping. This depends on the nature of the products. The role of product attribute is very significant in the online purchasing of consumer durable goods. These attributes include quality of the products, features, brand, services provided, and warranty and guarantee and so on. Hence marketers should focus on these products attributes so that they can increase their sales and satisfy the needs of the consumers.

References

1. Das, B., Mohanty, S., & Shil, N. C. (2009). Categorizing consumers' buying behavior: A factor analysis in consumer durable market. *International Journal of Business and Management*, 3(9), 147.
2. Kathiravanaa, C., Panchanathamaa, N., & Anushan, S. (2010). The competitive implications of consumer evaluation of brand image, product attributes, and perceived quality in competitive two-wheeler markets of India. *Serbian Journal of Management*, 5(1), 21-38.
3. Rajput, A. A., Kalhor, S. H., & Wasif, R. (2012). Impact of product price and quality on consumer buying behavior: Evidence from Pakistan. *Interdisciplinary Journal of Contemporary Research in Business*, 4(4), 485-496.
4. Peter J. Paul & Olson Jerry C., *Consumer Behaviour & Marketing*. New Delhi ; Tata Mc Graw Hill, 2009 7th ed.

Social Impact of Cyber Crime: A Sociological Analysis

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Abstract

The world of internet today has become a parallel form of life and living. The concept of cyber crime is not radically different from the concept of conventional crime. Cyber crime may be said to be those species, of which, genus is the conventional crime, and where either the computer is an object or subject of the conduct constituting crime. Any criminal activity that uses a computer either as an instrumentality, target or a means for perpetuating further crimes comes within the ambit of cyber crime. Both include conduct whether act or omission, which cause breach of rules of law and counterbalanced by the sanction of the state. Cyber criminals take full advantage of the anonymity, secrecy and interconnectedness provided by the Internet, therefore attacking the very foundations of our modern information society. Cyber crime can involve botnets, computer viruses, cyber

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bullying, cyber stalking, cyber terrorism, cyber pornography, Denial of Service attacks, hacktivism, identity theft, malware and spam. In this study is a systematic understanding of cyber crimes and their impacts of Society.

Keywords: *Cyber, Society, Pornography, Criminals, Computer*

Introduction

Cyberspace is a very wider term. Most of us have a limited knowledge of “Cyberspace” and the crimes occurring in “cyberspace”, is known as cybercrime or computer crimes or "computer related crime" or "crime by computer". Cyber crime is the latest and perhaps the most complicated problem in the cyber world. Computer-related misdeed designated days back to the sources of computing itself, though the larger connectivity between computers through the Internet has conveyed the notion of cyber misdeed into the public consciousness of our data humanity, where it continues at the start of the 21st century.

Cyber crimes can be defined as the unlawful acts where the computer is used either as a tool or a target or both. The term is a general term that covers crimes like phishing, credit card frauds, bank robbery, illegal downloading, industrial espionage, child pornography, kidnapping children via chat rooms, scams, cyber terrorism, creation and/or distribution of viruses, Spam and so on. Cyber crime is a broad term that is used to define criminal activity in which computers or computer networks are a tool, a target, or a place of criminal activity and include everything from electronic cracking to denial of service attacks.

A generalized definition of cyber crime may be “unlawful acts wherein the computer is either a tool or target or both” The computer may be used as a tool in the following kinds of activity- financial crimes, sale of illegal articles, pornography, online gambling, intellectual property crime, email spoofing, forgery, cyber defamation, cyber stalking. The computer may however be target for unlawful acts in the following cases- unauthorized access to computer/ computer system/ computer networks, theft of information contained in the electronic form, e-mail bombing, data didling, salami attacks, logic bombs, Trojan attacks, internet time thefts, web jacking, theft of computer system, physically damaging the computer system.

Cybercrime is defined as crimes committed on the internet using the computer as either a tool or a targeted victim. It is very difficult to classify crimes in general into distinct groups as many crimes evolve on a daily basis. Even in the real world, crimes like rape, murder or theft need not necessarily be separate. However, all cybercrimes involve both the computer and the person behind it as victims; it just depends on which of the two is the main target. Hence, the computer will be looked at as either a target or tool for simplicity's sake. For example, hacking involves attacking the computer's information and other resources. It is important to take note that overlapping occurs in many cases and it is impossible to have a perfect classification system.

Types of Cyber Crime: When any crime is committed over the Internet it is referred to as a cyber crime. There are many types of cyber crimes and the most common ones are explained below:

- Hacking
- Theft
- Cyber Stalking
- Identity Theft

➤ **Malicious Software**

Types of Cyber Criminal: The cyber criminals constitute of various groups/ category. This division may be justified on the basis of the object that they have in their mind. There are many types of cyber criminals.

- Children and adolescents between the age group of 6 – 18 years
- Organized hackers
- Professional hackers / crackers
- Discontented employees

Classification of Crime

The subject of cyber crime may be broadly classified under the following three groups. They are-

Against Individuals

- Harassment via e-mails.
- Cyber-stalking.
- Dissemination of obscene material.
- Defamation.
- Unauthorized control/access over computer system.
- Indecent exposure vii. Email spoofing
- Cheating & Fraud

Against Society

- Pornography (basically child pornography).
- Polluting the youth through indecent exposure.
- Trafficking
- Financial crimes
- Sale of illegal articles
- Online gambling
- Forgery

Cyber Crime & Society

Cyber misdeed attacks the very bases of up to date, technological societies, compelled up as they are with the fast flow of computer facts and numbers helped by the Internet. At the most rudimentary grade, cyber lawless individuals often take benefit of technologically unsophisticated persons who nonetheless find themselves in a world where the Internet performances a progressively centered function in both groups and in personal lives. Cyber misdeed counts, at this grade, on the proficiency of those who are more technologically complicated to use that information to knock other ones into submitting crucial data, for example their bank account data or Social Security number. While it is likely in some positions for the casualty of cyber misdeed to refurbish thieved cash or even their individual online persona, the happening often departs the casualty traumatized and profoundly doubtful of the Internet and other trappings of up to date life. In this way the cyber lawless individual deprives his or her casualty of numerous of the conveniences of today's data economy.

Review Literature

In India, at least one cyber attack was reported every 10 minutes in the first six months of 2017. In 2017, as per the Indian Computer Emergency Response Team (CERT-In), a total of 27,482 cases of cybercrimes have been reported across the world. These include phishing, site intrusion, virus, and ransomware. The cyber experts told Times of India that

with the programs such as Digital India in place, more Indians are surfing the Internet and hence, it is crucial to put critical infrastructure in place to predict and prevent cybercrimes. With the high percentage of cybercrime coming forward this year, the numbers are expected to shoot up in future. Mirza Faizan sad, a “cyber crime expert was quoted by TOI saying” The government is making an effort to reduce online crimes but the firms and the individuals need to be ready with a strong team that is programmed for preventing such crimes.” He added: “It is not just enough to make efforts at the government level, which is, in some sense happening, but cybercrime affects hundreds of individual systems and firms, all of whom need to be ready with specialized teams.”

A total of 1.71 lakh cybercrimes were reported in India in the past three-and-a-half years. The number of crimes that have been reported so far (27,482) indicates that the total number is likely to cross 50,000 by December.

In the past three years, Ransomware attacks have increased. In this, the attacker threatens to publish the data of a person online until a certain amount of ransom is paid. The attackers demand ransom in bitcoins (a digital currency), a secure way for accepting this type of payment.

Impact of Society

Crime as an evil factor of Society

Despite crimeless society is myth, crime is omnipresent phenomenon, and it is non-separable part of social existence, one may get irritate by the question, 'Why there is too much ado about crime?' No one can deny that crime is a social phenomenon, it is omnipresent, and there is nothing new in crime as it is one of the characteristic features of the all societies existed so far, may it be civilized or uncivilized, and it is one of the basic instincts of all human behavior! However, it should bear in mind that the social concern for high crime rate is not because of its nature, but due to potential disturbance it causes to the society. In addition, some individuals are victims of crime in a more specific sense. The victims of crime may lose anything that has value. Safety, peace, money, and property are perhaps basic values, because they contribute to the satisfaction of many wishes.

Cyber-pornography

Cyber-pornography mentions expressly to progeny pornography on the internet, usually engaging those less than 18 years of age. While enclosures in the United States and Europe have discovered mature individual pornography on the internet to drop inside lawful boundaries, there is a effectively agreed lawful, lesson, psychological and communal agreement that young children are not to be engaged in the international sex industry.

Impact of Cyber Crime over Teenager

These days a worst fear in teenager's eyes is Cyber Bullying. It is become common over past five years, generally from the age below eighteen are more susceptible and feared from Cyber Bullying as per inspection. It is becoming an alarming trend in our society. As per inspection of data, the worst fear of cyber crime is on teenagers female. Cyber Bullying is a fear when person receives threats, negative comments or negative pictures or comments from other person

Impact of Cyber Crime over Youth

Cyber communication is society's newest way to interact. Online social networking websites, text messages and emails provide users with an effective, quick way to communicate with people all over the world. Teens in particular spend hours online every day, on computers or personal electronic devices.

Friendships

Family-resource.com states that 48 percent of teens believe the Internet improves their friendships. With social networking sites becoming increasingly popular, youth are able to stay connected to real and online friends. Some teens believe cyber connections help them feel confident to be their true selves. Instant messaging programs, used by an estimated 13 million teens, allow conversations with friends to occur in real time. Online communication tools open the door for friendships with other teens near and far.

Cyber Bullying

Cyber bullying is a negative effect of online communication between youth. Victims of cyber bullying often experience rumors and lies spread on online social networks. Bullies may post inappropriate or embarrassing pictures of their victims. Another aspect of cyber bullying involves using mean text messages as harassment. The National Crime Prevention Council states that cyber bullying is a problem for almost half of American teens. In some extreme cases, teens have taken their own lives as a result of cyber bullying.

Sexual Solicitation

Sexual solicitation is a growing concern for youth who use forms of cyber communication. It may occur in chat rooms or on social networking sites. Sexual solicitation occurs when an adult or peer tries to engage in an online sexual relationship. A teen may be asked to disclose personal information, view pornography or discuss something sexual online. About 70 percent of teens who are sexually solicited online are girls. Teens should be cautious in posting suggestive photos online and talking to strangers in chat rooms.

Statutory Provisions

The Indian parliament considered it necessary to give effect to the resolution by which the General Assembly adopted Model Law on Electronic Commerce adopted by the United Nations Commission on Trade Law. As a consequence of which the Information Technology Act 2000 was passed and enforced on 17th May 2000. The preamble of this Act states its objective to legalise e-commerce and further amend the Indian Penal Code 1860, the Indian Evidence Act 1872, the Banker's Book Evidence Act 1891 and the Reserve Bank of India Act 1934. The basic purpose to incorporate the changes in these Acts is to make them compatible with the Act of 2000. So that may regulate and control the affairs of the cyber world in an effective manner.

Today, in our country computer technology is growing fast and is compulsory in primary and secondary classes in all schools. Adolescents are using the computer more and are also more friendly with computers because they are highly innovative and easily adopt new things so they keep search for new things every minute. People who commit cyber crime fraud misuse personal information and take advantage of such things and misguide or blackmail the adolescents. Cyber crime including everything from identifying theft and hacking to virus distribution and computer fraud is a complex area of criminology and one that is receiving more attention is computers that are prevalent in our lives and handle more of our personal information.

Prevention of Cyber Crime

Prevention is always better than cure. It is always better to take certain precaution while operating the net. A should make them his part of cyber life.

- Always avoid sending any photograph online particularly to strangers and chat friends as there have been incidents of misuse of the photographs.

- To prevent cyber stalking avoid disclosing any information pertaining to one self. This is as good as disclosing your identity to strangers in public place.
- Always keep a watch on the sites that your children are accessing to prevent any kind of harassment or depravation in children.
- Never send your credit card number to any site that is not secured, to guard against frauds.
- To prevent porn site for children under 18 years.
- Block pornographic sites on the Internet, which is the primary source of the photos and videos that transmits through Social networking sites.

Conclusion

As a social experience, individuals can interact, exchange ideas, share information, provide social support, conduct business, direct actions, create artistic media, play games, engage in political discussion, and so on, using this global network . It can be used illegally which is termed as cybercrimes. Some of the cybercrimes are hacking, child pornography, cyber stalking, child grooming, online fraud etc. The usefulness of the Internet has proved itself in numerous and myriad ways that will hopefully be enough to ensure it does not become a wasteland of criminal activity and a bastion for the malicious. Everybody is using the computers i.e. from white collar employees to terrorists and from teenagers to adults. The younger generations, which use the internet and other online technologies extensively for staying connected for all day to day work and entertainment, including information, e-mails, social networking, ebanking, e-shopping, web-TV, news, education, home-work research, online gaming, downloading music, videos, movies and other contents etc, are more vulnerable to targeted cyber-crime. The government still has an important role to play, but most of the prevention needs to be done by commercial entities producing software and those with the ability to stop fraud. Relying on consumer education programs will only affect a percentage of possible victims. Whether cybercrime is still a pertinent issue ten years from now is unknowable in a sense, but if the Internet will continue to grow, it must be solved so that the realities of cybercrime will be proportional to real-world crimes, if not better.

References

- Dashora k., (2011), Cyber Crime in the Society: Problems and Preventions Journal of Alternative Perspectives in the Social Sciences (2011) Vol 3, No 1, 240-259
- Das. M., Nayak T., (2013) Impact of Cyber Crime: Issues and Challenges, International Journal of Engineering Sciences & Emerging Technologies, Volume 6, Issue 2, pp: 142-153.
- <https://timesofindia.indiatimes.com/india/twitter-account-of-indias-top-un-diplomat-hacked-restored/articleshow/62494760.cms>
- Gupta S, (2017), Impact of cyber crime on adolescents through social networking sites, International Journal of Law, Volume 3; Issue 6; November 2017; Page No. 104-106

Performance Evaluation of Financial Inclusion Measures in India

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Abstract

Financial inclusion is considered as an effective means to sustainable economic growth, and is intended to ensure that each citizen of the country is able to use their earnings as a national financial resource for redeployment in productive sectors of the economy. Financial inclusion is defined as the availability and equality of opportunities to access financial services. India's GFX was 35 in 2011, 53 in 2014, and 80 in 2017, which reflects a speedy improvement in financial inclusion. This paper is an attempt to evaluate the

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various financial measures in India and the researcher has applied percentage analysis and trend analysis to interpret the results of financial inclusion. From the analysis it is known that the growth is more evident in case of General Purpose Credit Card and Information Communication and Technology account. Likewise The penetration of Jan Dhan Scheme is more in urban area when compared to rural area and the role of Public Sector Bank in the implementation of financial inclusion measures is more and vital and is low in case of private banks. Hence it is concluded that the banks should take concrete steps to all the areas irrespective of the regional disparity so that everyone can be included and benefitted by the various schemes of financial inclusion.

Key Words: Banking, Financial Inclusion, Jan Dhan, Penetration, Transaction, Trend,

Introduction

Globally, financial inclusion is considered as a critical indicator of development and well-being of a society. As a result of renewed thrust on financial inclusion, an inclusive financial system is widely recognised in policy circles as a proactive measure and has become a basic priority in many countries, including India. Financial inclusion is considered as an effective means to sustainable economic growth, and is intended to ensure that each citizen of the country is able to use their earnings as a national financial resource for redeployment in productive sectors of the economy. Such pooled financial resources can be channelised to develop enterprises, fueling the nation's progress. The concept of financial inclusion was first mooted by Reserve Bank of India in 2005 and branchless banking through banking agents referred to as Bank Mitra (business correspondents) was started in 2006. In the year 2011, the Government of India launched a campaign that provided banking facilities to about 74,000 villages, with a population of more than 2,000 (as per the 2001 Census). India's GFX was 35 in 2011, 53 in 2014, and 80 in 2017. This reflects a speedy improvement in financial inclusion. Financial inclusion is where individuals and businesses have access to useful and affordable financial products and services that meet their needs that are delivered in a responsible and sustainable way. Financial inclusion is defined as the availability and equality of opportunities to access financial services. Those that promote financial inclusion argue that financial services can be viewed as having significant positive externalities when more people and firms participate. One of its aims is to get the unbanked and under banked to have better access to financial services. The availability of financial services that meet the specific needs of users without discrimination is a key objective of financial inclusion.

Global Microscope

India has shown dramatic improvement in the Global Microscope between 2014 and 2016. India's financial inclusion policy, Pradhan Mantri Jan-Dhan Yojana, has the political will and institutional support of the government and the RBI. This is demonstrated with quantifiable goals, such as the opening of 100 million bank accounts for low-income families in 2014 and assisted by the Aadhaar national biometric identification programme. The momentum in account opening continued over the next 2 years, reaching 221 million by April 2016. The plan also emphasises access to credit, insurance and pension facilities, as well as the goal of channelling all government benefits into beneficiaries' bank accounts to increase usage. The RBI has targets in place to provide alternative sources of access through bank branches, bank correspondents, ATMs and satellite branches in villages of 2,000 or more residents. It has also issued guidelines to strengthen financial literacy. In

addition, the RBI is working to strengthen the payment system with the launch of the Unified Payment Interface (UPI) to facilitate digital money transfers. The greater attention to digital technologies for financial inclusion holds promise. In the 2014-15 period, countries' scores in this area rose by a remarkable 11 points on average, indicating widespread, positive action to create a regulatory environment more conducive to digital economic activity. Apart from improvements year to year, several of the countries in the study continue to receive the highest score of 100 out of 100 in the overall indicator of e-payments. These are: Bolivia, Ghana, India, Kenya, Sri Lanka and Tanzania, with India being the addition this year.

Table 1 Overall Score and Rankings

Rank/55	Country	Scores/100	Change
1	Columbia	89	3
1	Peru	89	-1
3	India	78	7
3	Philippines	78	-3
5	Pakistan	63	1
6	Chile	62	0
6	Tanzania	62	0
8	Kenya	61	5
8	Rwanda	61	7
10	Mexico	60	0

Source: 2016 Global Microscope Report

In the overall scores on financial inclusion, India ranks third position with a score of 78 out of 100 which recorded a change percent of 7. From among the top ten countries, Columbia (89) and Peru rank first which is followed by India and Philippines (78), Pakistan (63), Chile and Tanzania (62), Kenya and Kenya (61) and Mexico (60). The change is apparent in case of India, Rwanda, Kenya and Columbia.

Definitions of Financial Inclusion

Reserve Bank of India (2008): RBI defines Financial Inclusion as “process of ensuring access to appropriate financial products and services needed by all sections of the society in general and vulnerable groups such as weaker sections and low income groups in particular.”

Planning Commission (2009): “Financial inclusion refers to universal access to a wide range of financial services at a reasonable cost. These include not only banking products but also other financial services such as insurance and equity products.”

Chakraborty (2011): “Financial inclusion is the process of ensuring access to appropriate financial products and services needed by all sections of society including vulnerable groups such as weaker sections and low income groups at an affordable cost in a fair and transparent manner by mainstream institutional players.”

Table 2 Milestones of Financial Inclusion in India

Year	Event
1935	Establishment of RBI
1956	Imperial Bank of India was nationalized
1968	National Credit Council was set up
1969	Lead bank scheme was introduced,

1971	Priority sector lending norms were laid down
1975	Regional Rural Banks (RRBs) were established
1980	Nationalization of Banks
1982	National Bank for Agriculture and Rural Development (NABARD) was established
1992	Self Help Groups Linkage Programme was launched to support females of rural areas
1998	NABARD sets a goal for linkage One Million SHGs by 2008
2000	SIDBI foundation was established for making provisions of micro credit
2004	Khan Committee was set up by Reserve Bank of India
2005	Pilot project on financial inclusion was introduced
2006	Committee on Financial Inclusion headed by Dr.C.Rangarajan Mangalam Village of Puducherry became the First Village to achieve 100 per cent Financial Inclusion
2007	Bill on Microfinance Regulation was proposed in parliament
2008	Rangarajan Committee Submitted its Final Report on Financial Inclusion to Union Finance Minister in January
2011	Swabhiman Campaign (RBI)
2012	Finance Department of Government of India passed Microfinance Institutions
2012	Revised Guidelines on Financial Literacy Centres were introduced
2013	Unique Identification Number (AADHAR) and Direct Benefit Transfer (DBT) Scheme
2014	National Mission on Financial Inclusion launched by Prime Minister on 28th August,
2015	Approval of RBI to setup Payments Banks, MUDRA Bank

Source: Compiled

Financial Inclusion Measures in India

1. Basic Savings Bank Deposit Account (BSBDA): This is the bank account with a minimum bouquet of services including savings and payments given to the financially excluded people that. The BSBDA account has replaced the previous no frills (zero balance) account. Minimum bouquet of products and services were offered under BSBDA and they include:

- A savings cum overdraft account
- A pure savings account, ideally a recurring or variable recurring deposit
- A remittance product to facilitate EBT and other remittances, and
- Entrepreneurial credit products like a GCC or a KCC

2. Simplified KYC Norms: the RBI has simplified KYC regulations especially for small value clients and transactions. This is because in a country like India where documents and identity proof are not with many, it is very difficult to attract them to stricter KYC standards. Hence essential and basic level identities are needed under this simplified KYC regime.

3. Liberalized policy towards ATMs and White label ATMs. To expand the network of ATMs, the RBI has allowed non-bank entities to start ATMs (called 'White Label ATMs').

4. Adoption of Business Correspondents (BCs): BCs were allowed to provide banking services in rural areas.

5. Promotion of technology-based instruments for spreading banking services: Several technologies based solutions were initiated by the RBI to promote financial inclusion. These include incentivizing banks to issue smart cards and ATM cards etc, supporting internet banking and mobile banking with regulatory measures. Business Correspondents have to use ICT while delivering products in remote areas.

6. Promotion of Payment infrastructure including pre-paid instruments: Technological development has transformed payment operations. Payments are essential banking services. Here, the RBI itself has the NEFT and RTGS. Banks and Non-Bank entities like telecom companies are allowed to issue prepaid instruments like mobile wallet etc.

7. RuPay Debit Cards: They were launched in 2012 by NPCI. "RuPay" is the coinage of two terms Rupee and Payment. The RuPay Cards have significantly increased its market share to 38 per cent (250 mn) of the total 645 million debit cards in the country so far. The card has been provided to the account holders of PMJDY (170 million).

8. Financial Literacy Programme: Financial Literacy Centers were started by commercial banks at the request of RBI to give awareness and education to the public to access financial products. Here, RBI's policy is that financial inclusion should go along with financial literacy. RBI provides support to Financial Literacy and Credit Counselling Centres (FLCCs).

9. Financial Inclusion Plan for the expansion of branch and branchless banking. Commercial banks have launched FIP to provide banking services to remote areas.

10. Liberalized Branch License Scheme: the RBI has launched this step in December 2009. Here, domestic scheduled commercial banks were permitted to freely open branches in tier III to tier VI centres with a population of less than 50,000 subject to reporting. In north-eastern states and Sikkim, domestic scheduled commercial banks can now open branches in rural, semi-urban and urban centres with the same liberalized procedure. Similarly, banks were asked open at least 25 per cent of the total number of branches in unbanked rural centres.

11. Kisan Credit Cards (KCC) and General Credit Cards (GCC)

Kisan Credit Cards were issued to small farmers to get hassle free credit from banks. Issue of credit cards to the credit needy people was another component of the RBI's financial inclusion drive. Under GCC, banks have been asked to introduce general purpose credit card facility up to Rs 25,000 at their rural and semi-urban branches for low-income people. The objective of the scheme is to provide hassle-free credit to customers based on the assessment of cash flow without insistence on security, purpose or end-use of the credit.

12. Bank -SHG linkage programme

13. Aadhaar enabled payment system

14. Direct Benefit Transfer (DBT): The launch of direct benefit transfers through the support of Aadhaar and Bank Account is one of the biggest developments that activated and retained people in the newly opened account.

15. PMJDY: Pradhan Mantri Jan Dhan Yojana

16. EBT: RBI has encouraged Electronic Benefit Transfer for routing social security payments through the banking channel.

17. Unified Payments Interface: UPI is a payment mechanism built by the NPCI to promote online money transactions. It is aimed to facilitate retail payments for ecommerce, small ticket money transfers for person to person payment, micropayments, utility bill payments etc. Purchase of tickets, payment of school fees, etc. can be easily carried out by the interface rather than submitting the bank details while executing the transaction.

18. BHIM App

Table 3 Trend on the growth of Financial Inclusion

Description	Year					Absolute Changes			
	MAR-2013	MAR-2014	MAR-2015	MAR-2016	MAR-2017	13- 14	14- 15	15- 16	16-17
Banking Outlets in Villages - Branches	40,837	46,126	49,571	51,830	50,860	5,289	3,445	2,259	-970
Banking Outlets in Villages - Branchless Mode	227,617	337,678	504,142	534,477	547,233	110,061	166,464	30,335	12,756
Banking Outlets in Villages - Total	268,454	383,804	553,713	586,307	598,093	115,350	169,909	32,594	11,786
Trend %	100	143	206	218	223	100	147	28	10
Urban Locations covered through BCs	27,143	60,730	96,847	102,552	105,402	33,587	36,117	5,705	2,850
BSBDA through branches (million)	101	126	210.3	238	254	25	84.3	27.7	16
BSBDA through branches (Rs. billion)	165	273.3	365	474	691	108.3	91.7	109	217
BSBDA through BCs (No. in million)	81	116.9	187.8	231	280	35.9	70.9	43.2	49
BSBDA through BCs (Rs. billion)	18	39	75	164	285	21	36	89	121
BSBDA Total (in million)	182	243	398.1	469	533	61	155.1	70.9	64
Trend %	100	134	219	258	293	100	254	116	105
BSBDA Total (Amt. in Rs. billion)	183	312.3	439	638	977	129.3	126.7	199	339
Trend %	100	171	240	349	534	100	98	154	262
OD facility availed in BSBDA (million)	4	5.9	7.6	9	9	1.9	1.7	1.4	0
OD facility availed in BSBDA (Rs. billion)	2	16	19.9	29	17	14	3.9	9.1	-12
KCCs-Total (No. in million)	34	39.9	42.5	47	46	5.9	2.6	4.5	-1
Trend %	100	117	125	138	135	100	44	76	-17
KCCs-Total (Amt. in Rs. billion)	2,623	3,685	4,382.3	5,131	5,805	1,062	697.3	748.7	674
Trend %	100	140	167	196	221	100	66	70	63
GCC-Total (No. in million)	4	7.4	9.2	11	13	3.4	1.8	1.8	2
Trend %	100	185	230	275	325	100	53	53	59
GCC-Total (Amt. in Rs. billion)	76	1,096.9	1,301.6	1,493	2,117	1,020.9	204.7	191.4	624
Trend %	100	1443	1713	1964	2786	100	20	19	61
ICT A/Cs-BC Total Transactions (million)	250	328.6	477	827	1,159	78.6	148.4	350	332
Trend %	100	131	191	331	464	100	189	445	422

ICT A/Cs-BC Total Transactions (Rs. billion)	234	524.4	859.8	1,687	2,652	290.4	335.4	827.2	965
Trend %	100	224	367	721	1133	100	115	285	332

Source: Compiled from Reports, BSBDA: Basic Savings Bank Deposit Account (), KCC: Kisan Credit Card, GCC: General Purpose Credit Card and ICT: Information Communication and Technology

The above table describes the trend on the growth of Financial Inclusion in various measures such as expansion of branch offices, Basic Savings Bank Deposit Account, Kisan Credit Cards, General Purpose Credit Card and accounts based on Information Communication and Technology. The growth rate is calculated with the help of trend analysis and it is noted that there is 123 percent of increase in case of expansion of branch offices, 193 percent for Basic Savings Bank Deposit Account in numbers, 434 percent for Basic Savings Bank Deposit Account in amount, 35 percent for Kisan Credit Card in numbers, 121 percent for Kisan Credit Card in amount, 225 percent for General Purpose Credit Card in numbers, 2686 percent for General Purpose Credit Card in amount, 364 percent for Information Communication and Technology account in numbers and 1033 percent for Information Communication and Technology account in amount. The growth is more evident in case of General Purpose Credit Card and Information Communication and Technology account.

Jan Dhan Scheme

Pradhan Mantri Jan-Dhan Yojana (PMJDY) is National Mission for Financial Inclusion to ensure access to financial services, namely, Banking/ Savings & Deposit Accounts, Remittance, Credit, Insurance, Pension in an affordable manner. Account can be opened in any bank branch or Business Correspondent (Bank Mitra) outlet. Accounts opened under PMJDY are being opened with Zero balance. However, if the account-holder wishes to get cheque book, he/she will have to fulfill minimum balance criteria. This financial inclusion campaign was launched on 15 August 2014. Slogan of the Scheme is "Mera Khatha, Bhagya Vidhatha, meaning "My account brings me good fortune". The progress of the scheme is presented as under.

Table 4: Progress under Jan Dhan Scheme – Region wise (All Figures in Crores)

Bank Type	2016			2018			Change %		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Public Sector Bank	10.79	8.46	19.25	14.33	12.26	26.59	32.81	44.92	38.13
Regional Rural Bank	3.59	0.58	4.17	4.55	0.84	5.38	26.74	44.83	29.02
Private Banks	0.52	0.33	0.85	0.61	0.40	1.01	17.31	21.21	18.82
Total	14.90	9.37	24.27	19.49	13.50	32.99	30.81	44.08	35.93

Source: Compiled, Reports of Pradhan Mantri Jan Dhan Yojana (PMJDY)

This table describes the financial inclusion through Jan Dhan Scheme and has explained the growth between the years 2016 and 2018 (upto October), it is noted that the growth is vital with an overall growth rate of 30.81 percent for rural, 44.08 for urban and 35.93 as a whole. Bank wise, Public Sector Bank has a growth of 32.81 percent for rural, 44.92 for urban and 38.13 as a whole, Regional Rural Bank has a growth of 26.74 percent for rural, 44.83 for urban and 29.02 as a whole and Private Banks has a growth of 17.31 percent for rural, 21.21 for urban and 18.82 as a whole. The penetration of Jan Dhan Scheme is more

in urban area when compared to rural area. Hence it is concluded that the role of Public Sector Bank in the implementation of financial inclusion measures is more and vital and is low in case of private banks.

Conclusion

Financial Inclusion is the roadmap to bring the rural people from the unbanked and unreached segments in the society into the formal financial system. The Government of India has extracted diverse step to improve the status of financial inclusion in our society. This paper is an outcome of the performance evaluation of various financial measures in India, the result shows that the improvement of financial products and financial activities over the period is commendable. From the analysis it is known that the growth is more evident in case of General Purpose Credit Card and Information Communication and Technology account. Likewise The penetration of Jan Dhan Scheme is more in urban area when compared to rural area and the role of Public Sector Bank in the implementation of financial inclusion measures is more and vital and is low in case of private banks. Hence it is concluded that the banks should take concrete steps to all the areas irrespective of the regional disparity so that everyone can be included and benefitted by the various schemes of financial inclusion.

References

1. Abhinav Mol TP (2014),. Financial inclusion: Concepts and overview in Indian context. *International Monthly Referred Journal of Research in Management and Technology*. 2014; 3(6):1–8 17.
2. Arup Mukherjee and Satya Sachi Chakravarty. (2012). Financial Inclusion of the Poor and Marginalized in Jharkhand: Analysis of the existing Model". *International Journal of Research and Development-A management Review (IJRDMR)*, ISSN 2319-5479.
3. AsliDemirguc - Kunt and Klapper, L. (2012), Measuring Financial Inclusion, Policy Research Working Paper, 6025, World Bank, April.
4. Garg N (2015), Role of banks in financial inclusion, *International Journal of Management and Social Sciences*. 2015; 4(6):1–7.
5. Godinho V.Singh S (2013), Technology enabled financial inclusion and evidence-based policy for the underbanked: A study of remote Indigenous Australia, Social Science Research Network
6. Kolloju N (2014), Business correspondent model vis-a-vis financial inclusion in India: New practice of banking to the poor, *International Journal of Scientific and Research Publications*. 4(1):1–7.
7. Koorse CP, Kavitha S (2015), A study on banking penetration in financial inclusion With special reference to Tamil Nadu, *International Journal of Engineering and Management Research*. 2015; 3(6):1–8. 16.
8. Laha A, Kuri PK (2011), Demand for and supply of financial inclusion in India: An inter-state analysis, *Elk Asia Pacific Journal of Finance and Risk Management*. 2011; 1-14
9. Financial Inclusion Reports, IBEF
10. Sharma A, Kukreja S (2013), An analytical study: Relevance of financial inclusion for developing nations, research invents, *International Journal of Engineering and Science*. 2013; 2(6):15–20.

Promotional strategy: To Enhance Punjab as a Tourism Destination

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Abstract

Purpose

The aim of this paper is to promote Punjab as a tourism destination through special technique, by assess the adequacy of promotional strategies. In order to establish proper promotional strategy research assesses the adequacy of promotional strategies in order to attract foreign tourist inflow. Promotion to upgrade as tourism goal requires a procedure. It isn't difficult to promote tourism goal as brands simply need to indentify key issues amid destination marketing (Baldemoro2013). Limited time methodologies are subsequently

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especially noteworthy since it enhance revenue as well as encourages the destination to draw in new clients while holding the current ones. One can utilize an assortment of limited time procedures however before that the destination must comprehend the genuine idea of their product/service and after that distinguish the most suitable strategy. The result of this examination demonstrates that suitable exceptional technique assume imperative job in destination marketing through promotion.

Key word: Promotion, Tourism, Strategy, destination marketing

I. Introduction

The marketing idea is frequently utilized improperly, diminishing it to the promotion and offer of product and visitor goals, specifically to promoting Punjab as tourism destination. Promotion is a type of correspondence with the objective clients. Or maybe it tends to be considered as a type of convincing correspondence went for changing the purchasing conduct of the clients. A privilege special technique will be useful to the Punjab in influencing the clients to comprehend the way that it has the correct product or service for prospect clients. Advertising tourism goals is a testing movement in light of the fact that different partners e.g. indigenous individuals, organizations and financial specialists, visitors, visit administrators and mediators, and intrigue bunches are engaged with the improvement and generation of tourism products. However, an initial move towards choosing the promotional strategy, the Punjab state must settle on the correspondence objectives (Zeithaml and Bitner, 2000).

II. Research aim and Theoretical background

In marketing, headway implies a promoting correspondence used to instruct or impact target gatherings of spectators of the relative advantages of Product, service, or brand. The purpose of progression is to extend care, make interest, deliver arrangements or make brand unwavering quality. Promotion in tourism draws the consideration of the potential clients, change the conduct of the current purchasers and impact them to visit a destination (Mill and Morrison 2009). A tourism promotional plan speaks to a methodology and is a blend of strategies, tools and assets intended to accomplish certain revenue and social targets. It is one of the basic parts of the market mix, which fuses the four P's: price, product, promotion, and place. The fifth P: people, sixth process and seventh physical evidence. Advertisement is expected to illuminate individuals about the destination's product or service. Advertisement could be performed through media, for example, TV, daily papers, magazines, boards, radio and so on. Personal selling is the oral correspondence with potential purchasers. The individual offering may center to build up an association with the potential purchaser. Deals promotion gives motivations to clients or to the circulation channel that assistance to develop interest for product. The majority of the above ways have their favorable circumstances and their weaknesses too. Rowley, 1998; Clow and Baack, 2003 stated the promotional mix includes Advertising; Direct marketing; Sales promotion; Public relations and publicity; Personal Selling and Sponsorship. As per Petit et al. (1985, p.41) "the promotional blend is the mix of individual offering, advertisement, and deals advancement used to accomplish promoting targets. The goal and-undertaking strategy is utilized by and by to build up a solitary advancement blend plan. This is viable yet has downsides: (1) just a single promotion system and blend is considered, and (2) basic leadership is removed from the hands of senior marketing management.

2.1 Promotion mix strategies: According to Armstrong & Kotler (2005, p. 405) “a push strategy involves ‘pushing’ the product through distribution channels to final consumers. The producer directs its marketing activities (primarily personal selling and trade promotion) towards channel members to induce them to carry the product and to promote it to final consumers. Using a pull strategy, the producer directs its marketing activities (primarily advertising and consumer promotion) towards final consumers to induce them to buy the product. If the pull strategy is effective, consumers will then demand the product from channel members, who will in turn demand it from producers. Thus, under a pull strategy, consumers demand ‘pull’ the product through the channels.” This paper puts forward a basic leadership process by which elective promotional methodologies and blends are produced to pick the one that is generally encouraging." if there should be an occurrence of tourism advertising distinctive methodologies can be placed by and by to advance Punjab as a tourist destination.

III. Research Methodology

All things considered the term 'research' is the investigations of practical exercises that produces new technique, or build up the model and discoveries the issue from the existing information (Kothari 2004). The researcher has used survey method along with descriptive and exploratory method in this paper. The primary data collected through questionnaire from the foreign tourists and Tourist officers and tourist guides of Punjab. Total 600 tourists, 14 tourist officers on different locations and 20 tourist guides participated in this research. The secondary data collected from books, journals and web based resource.

3.1 Limitation

There are a few limitation of this investigation. Since these outcomes depend on advantageous of convenient sample who remained in chosen inns and resorts.

Data were gathered amid high and celebration season and the respondents were at that point in Punjab state, so the outcomes may contrast contrasted with those respondents that visit Punjab in other low season.

IV. Findings

Statistical Package for Social Sciences (SPSS) version 22 software was used to analyze data collected from the foreign tourists’ questionnaire. Since the sample differ significantly with regards to the numbers of tourists, tourist guides and tourist officers interviewed. The comparative analysis could not be done. However the researcher has tried to rank the perception and consider first five factors contributing to: The opinion of tourist, tourist guides and tourist officers about promotion.

The comparison of opinion of tourist, tourist guides and tourist officers on the promotional measure is as follow:-

S. No	The Promotional opinion of tourist	Tourist (n-600)	Rank	Tourist Guide (n-20)	Rank	Tourists Officers (n-14)	Rank
1	Travel brochure	62 (10.3)		5(25.0)		2(14.3)	
2	Tour operators	80(13.3)		13(65.0)	2	3(21.4)	
3	Tourism promotions of Punjab Govt.	154(25.7)	4	14(70.0)	1	6(42.9)	3
4	Internet	248(41.5)	2	12(60.0)	3	6(42.9)	3

5	Television	93(15.5)		13(65.0)	2	4(28.6)	5
6	Magazines	27(4.5)		11(55.0)	4	1(7.1)	
7	Travel guide books	52(8.7)		2(12.5)		5(35.7)	4
8	Relative & Friends (Word of Mouth)	304(50.7)	1	5(25.0)		8(57.1)	1
9	Books	48(8.0)		6(30.0)	5	7(50.0)	2
10	Education	129(21.5)	5	3(15.0)		7(50.0)	2
11	World travel fair	167(27.8)	3	11(55.0)		6(42.9)	3

In the Following table first 5 rank wise opinions of tourist, tourist guides and tourist officers:-

Rank	Tourists opinion	Tourist Guides	Tourist Officer
1.	Relative & Friends (Word of Mouth)	Tourism promotions of Punjab Govt.	Relative & Friends (Word of Mouth)
2.	Internet	Television, Tour operators	Books, Education
3.	World travel fair	Internet	Tourism promotions of Punjab Govt., Internet, world travel fair
4.	Tourism promotions of Punjab Govt.	Magazines	Travel guide books
5.	Education	Books	Television

The Pearson Chi-Square Test applied to above question and result is as following:-

Pearson Chi-Square Tests		
	Gender - M-1, F-2	
	Chi-square	Sig.
Travel brochure 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	14.567	.006*
Tour Operators 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all.	7.569	.109
Tourism promotions of Punjab Govt. 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	2.979	.561 ^{b,c}
Internet 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	3.582	.310 ^{b,c}
Television 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	3.422	.490
Magazines 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	136.575	.000*
Travel guide books 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp	5.250	.263 ^{b,c}

at all		
Relative & Friends (Word of Mouth) 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	15.297	.002*
Books 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	106.631	.000*
Education 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	34.830	.000*.b
World travel fair 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	2.467	.651

The comparison of tourist, tourist guides and tourist officers regarding media for communication

S. No.	Media	Tourist (n-600)	Rank	Tourist Guide (n-20)	Rank	Tourists Officers (n-14)	Rank
1.	TV	22(3.7)	4	9(45.0)	2	4(28.6)	3
2.	News paper	98(16.3)	2	5(25.0)	4	2(14.3)	4
3.	Magazines	72(12.0)	3	7(35.0)	3	5(35.7)	2
4.	Internet	412(68.7)	1	18(90.0)	1	14(100.0)	1

The following table shows Rank wise recommended media for communication by tourist, tourist guides and tourist officers

Rank	Tourists Perception	Tourist Guides	Tourist Officer
1.	Internet	Internet	Internet
2.	News paper	TV	Magazines
3.	Magazines	Magazines	TV
4.	TV	News paper	News paper

The Pearson Chi-Square Test applied to above question and result is as following:-

Pearson Chi-Square Tests					
		TV 1- Excellent,2- Very Good,3- Good,4- Average,5- Poor	News paper 1- Excellent,2- Very Good,3- Good,4- Average,5- Poor	Magazines 1- Excellent,2- Very Good,3- Good,4- Average,5- Poor	Internet 1- Excellent,2- Very Good,3- Good,4- Average,5- Poor
Gender - M-1, F-2	Chi-square	8.669	187.472	185.855	12.238
	df	4	4	4	2
	Sig.	.070 ^a	.000 ^{a,*c}	.000 ^{a,*c}	.002 [*]

While asked to the foreign tourist about the preference of TV channel, then 20 percent answered that sports and educational channel and same percentage was movie and entertainment channel. Then 16 percent said news and entertainment channels are their

preference. Furthermore 15 percent responded to movie and entertainment channel. Movie and educational channel was 11 percent and 7 percent was education and entertainment channels that effect tourist choice to watch. An overview on promotion management presumes that tourist gives first inclination while setting promotional mix then to relative & friends (Word of Mouth). Besides foreign tourist search internet to visit prospect destination, the world travel fair is ranked on number three. On fourth stage tourist plan visit by getting consideration of government promotions and education went on fifth rank according foreign tourist point of view. On the other hand tourist guide responded and gives their opinion that, tourism promotions of Punjab Govt. is ranked on number one, Television and Tour operators ranked on second position from which tourist like to attract. Internet is also good method communication and rank on third and magazines on fourth. Finally education gets fifth position. The third participants of this survey were tourist officer who deploy in different locations. According them relative & friends (Word of Mouth) ranked first, Books & Education on second rank, tourism promotions of Punjab Government, Internet, world travel fair ranked third position, Travel guide & books on fourth rank and finally fifth ranked obtained by television. While asked recommendation of all respondents then internet was their first inclination, in case of foreigner news paper ranked second, magazines on third position for tourist and tour guides and TV on fourth position. The tourist guide suggested TV on second rank and news paper on fourth rank for tourist officers as well. Tourist officers ranked magazines on second position and TV on third rank.

V. Discussion & suggestion

The results showed Relative & Friends (Word of Mouth) has a very important role in promotion of tourism destination which is consistent with suggestions of Dolnicar (2008) and Kotler, Bowen and Makens (2003). On the other hand advertisement through internet makes it possible to send the desired messages to buyers without the risk of undesired results by using pull strategy. It is true that nowadays customers have more control on their decision making process when it comes to the internet. (El Ansary, Frost & Strauss 2006, 315-317.) World travel fair are a frequently need to used which also suggested by this paper. Through world travel fair Punjab can promote its brand by putting name of destination in front of target audience. The conclusion is that these three communication techniques have an excellent synergistic effect and successfully complement each other. While one is talking about destination marketing through advertisement then tourism promotions by state Government is required to use television advertisement to promote destination to attract prospect tourist. Education about different destination either by print media or through tourist guide is essential. Although there are different preference of tourist, tourist guide and tourist officers for advertisement when promoting a destination, but the plain fact is that word of mouth should use on large extent. In the author's opinion, there is great potential for the further development and improvement of the promotion of tourist destinations. Further the use of Social media is suggested by researcher. Social media crusade expands the perceivability which can prompt win more benefits. To raise the awareness for social media campaign the state should include social media logos and links to their further advertisement.

VI. Conclusion

Nobody will visit Punjab except if potential clients have not known about, nor will visit in the event that they don't realize what Punjab offers to them. This is the reason an

extraordinary promotion strategy is essential if needs to promote Punjab as tourism destination. Numerous tourism destinations utilize in excess of one technique, while some others may utilize diverse strategies for various marketing purposes. The restricted time frameworks will position Punjab in an incredible light and gateway will open for future development. Nevertheless, the most basic activity in promotion is played by advertising, as one-way communication, and informal, as two-way communication between a destination and potential guests. Tourism promotion can be more fruitful through word of mouth marketing. Verbal (WOM) communication is a noteworthy bit of online relationship inside the online traveler networks. Particularly, tourism experts are possessed with WOM communication because of its prominence, development and effect on that community.

References

- Baldemoro, J., (2013) *Tourism Promotion*. Slideshare, Available: <http://www.slideshare.net/JHBlue/tourism-promotion-28432196>.
- Clow, E., K., Baack, D. (2003), *Integrated Advertising, Promotion, and Marketing Communications*, 2nd Edition, New York: Prentice Hall.
- Dolnicar, S., (2008) *Market Segmentation in Tourism*, in A.G. Woodside, and D. Martin (Eds.), *Tourism Management: Analysis, Behaviour and Strategy* (pp.129-150). Cambridge: CAB International.
- Eagle, L., (2003) Review of Clow, K., E., and Baack, D., (2002) *Integrated Advertising, Promotion and Marketing Communications*, New Jersey: Pearson Education/ Prentice Hall, *Journal of Marketing Communications*, 9 (3), pp. 193-194. ISSN 1352-7266
- El-Ansary, A., Frost, R., & Strauss, J., 2006, *E-Marketing* (4th ed.). London: Pearson Education.
- Madasu, P. 2013. *Social media marketing and promotion of tourism*, Vol. IX. Available: <http://www.smsvaranasi.com/insight/Social%20media%20Marketing%20and%20Promotion%20of%20tourism.pdf>.
- Kotler, P., Bowen. J., & Makens, J., (2003) *Marketing for Hospitality & Tourism*. New Jersey (US): Prentice Hall
- Armstrong G., Kotler P., (2005), *Marketing an Introduction*, (Page405, 459), Prentice Hall
- Kotler, P. & Armstrong, G. (2010) *Principal of marketing* (13thedition), Pearson Education Inc. Upper Saddle River, New Jersey.
- Kothari, C. R. 2004. *Research methodology: Methods & techniques* (2nd edition). India: New Age International (P) Ltd
- Mill, R., C., & Morrison, A., M., (2009), *The Tourism System* (6th edition), Kendall Hunt Publishing, USA.
- Mehta, V., 2012 Meaning, *Definition and Element of Promotion Mix*. Publish Your Articles. Available: <http://www.publishyourarticles.net/knowledge-hub/business-studies/promotion-mix.html>.
- Petit Thomas A., McEnally Martha R., (1985), *Journal of Consumer Marketing* .Volume 2 Issue 1 page 41-47 MCB UP Ltd
- Rowley Jennifer (1998), *Promotion and Marketing Communications in the Information Marketplace*, Volume: 47 Issue: 8 Page: 383 – 387.
- Sautter, E.T. & Leisen, B. (1999). *Managing stakeholders a Tourism Planning Model*. *Annals of Tourism Research*, 26(2): 312-328
- Zeithaml, V.A. and Bitner, M.J. (2000) *Services Marketing Integrating Customer Focus across the Firm*. 2nd Edition, McGraw-Hill, Boston

A Study on Impact of Risk Management on Organisational Performance

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Abstract

The present study is emphasized on primary data. The study determined on the impact of different types of risk on the performance management of organisations. The five risk variables considered in the study are operational, market, business, financial and credit. The study analysed the risk variables impact on the performance of organisations by using structured equation model (SEM) and also examined the relationship between the risk variables by using bi variant correlation. The results indicated that the credit, market and

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financial risk are having significant influence whereas operational and business risk does not have significant influence.

Introduction

Since 1909, when John Moody initially started to give ratings to some railroad organizations, administration has been concerned about firms'. Public debt rating now having a significant number of corporation whereas the rest are without public debt. A few firms have apparent focused on a rating, while others have decided to keep a specific edge. To accomplish or maintain their focus on ratings, a few organizations have changed their capital structures directly by issuing equity or purchasing back debt; others have tried to stable their balance sheet through some activities, for example, asset sales or profit cuts. People believe that the financial crisis in the United States in 2008 and the European Union emergency were avoidable and were caused by extensive failure in financial regulation. In this way, policymakers and controllers worldwide are presently trying re-establishing the trust in business sectors and planning long term responses to the crisis. CRAs assumed an important job in the financial crisis even with so much data; they couldn't anticipate the fall of huge financial institution. Investors basically focused around the ratings that CRAs assigned to financial instruments, for example, securities, collateralized debt, credit default swaps, and vehicles, which stunned the financial market. Corporate securities with the highest rating of AAA defaulted or lost value at a disturbing rate; the outcome was loss of investor's trust in the value of AAA rating. The financial media scrutinized these CRAs' competency and expertise with respect to their rating component utilized in assessing and evaluating different financial organizations' instruments and their monetary feasibility in the financial markets. With the five independent variables that are the focal point of this study, with the five independent factors and effect on the performance management of CRAs. This model will be caught in the plan of their effect on the performance management of CRAs. This model will be locked in the plan and the plan of nine hypotheses, followed by demographic attributes of the respondents. The experimental findings created with the utilization of partial least squares SEM will respondents. They strengthen and provide statistical reasoning and numerical robustness to the study.

Review of Literature

Guttler and Behr (2016), in their research paper, *The Stock Market Reaction to Changes of Unsolicited Ratings*, analyzed the stock market reaction of rating changes from unsolicited to solicited Ratings for a sample of Standard and Poor's rated firms from January 1996 to July 2004. They found that there is a significant negative stock market reaction to Rating downgrades. The study revealed that the capital market anticipates a Rating upgrade at the transition from unsolicited to solicit. The findings of the study revealed that when the market does not abnormally react to the upgrades in solicited Ratings from unsolicited Ratings, the firm need not worry' about Ratings

Czarnitzki and Kraft (2007): in their study, tested whether the credit ratings give more specific information about creditworthiness of the firms as compared to the publicly available information. They selected a sample of about 8000 firms of German manufacturing sector for the purpose of study and the time period of study was 1999-00. Further, the lower the productivity the more would be the probability of default. They further inferred that credit rating has some additional informational value for lenders but the rating agencies overemphasized the factor firm size in construction of rating index.

Christina E. Banner and Marcel Tyrell (2005): The authors proposed a model of credit rating agencies using the global games framework to incorporate information and coordination problems. They introduced a function of a credit rating agency that added reputation maximization; also it embeds aspects of competition and feedback effects of the rating on the rated firms. Apart from explanations for several hypotheses with regard to agencies optimal rating assessment, the model is suggested that the existence of rating agencies may decrease the incidence of multiple equilibria.

Valentin Delano and Felipe Jaque (2005): The authors examined that global investors behavior are emerging market assets related to controlling by credit rating. The research aims at examining the main hypothesis enhanced on investments differentiation by credit rating and inter regional contagion. The main consequence support the hypothesis that is clearly different from global investors about emerging markets cannot be observed during tranquil periods.

D M Nachane and Saibal Ghosh (2004): The paper has been examined on the credit rating on capital adequacy ratios of Indian state-owned banks using quarterly data for the period 1997:1 to 2002. At the end, a multinomial logit model with multi credit rating indicators as dependent variable is estimated. The variables that can impinge upon capital adequacy ratio have been used as explanatory variables. The two separate models are estimated:-

- Long term credit rating
- Short term credit rating

The paper concludes that, both for short-term as well as long-term ratings, capital adequacy ratios are an important factor impinging on credit rating of Indian state-owned banks.

Objectives of the Study

- 1 To study the relationship between the risk management factors with rating agencies
- 2 To study the impact of risk management factors on rating agencies.

Hypothesis of the Study

H₀: There is no relationship between risk management factors with rating agencies.

H₀: There is no impact of risk management factors on rating agencies.

Sampling Method: The present study is focused on the risk management impact on the credit rating agency performance. The study has considered the primary data and collected from the CRISIL and CARE agencies. The convenient sampling methodology has been applied for the collection of primary data. The 86 schedules have been collected and applied the reliability and the result stated with the Crone Bach's Alpha is observed to be 0.825.

Research Methodology: The study has considered the five risk factors of the rating agencies and schedule has been designed with the likert scale. Bivariate correlation has been applied to know the relation between the risk management factors with the performance of the organization. The structure equation model has been framed to know the impact of the select five factors on the credit rating agency performance.

Tabulation of Data Analysis

1st Objective: To study the relationship between the risk management factors with rating agencies

Null Hypothesis: There is no relationship between performance of risk agencies, financial risk, credit risk, operational risk, business risk and market risk.

Alternative Hypothesis: There exists a relationship between performance of risk agencies, financial risk, credit risk, operational risk, business risk and market risk.

Table – 1: Risk management factors relationship with Rating Agencies

Construct	PRA	FR	CR	OR	BR	MR
PRA	0.671					
FR	0.613	0.699				
CR	0.542	0.602	0.702			
OR	0.509	0.507	0.503	0.799		
BR	0.559	0.545	0.559	0.55	0.706	
MR	0.624	0.611	0.547	0.532	0.623	0.715

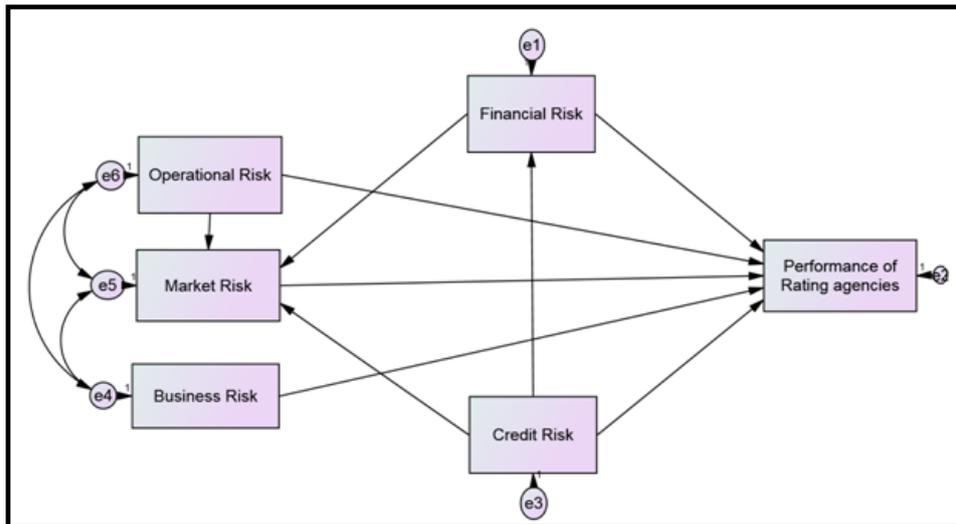
Source: Compiled on primary data

The table demonstrates the bi variant relationship between the performance of risk agencies, financial risk, credit risk, operational risk, business risk and market risk. The analysis results indicated that the performance of risk agencies, financial risk and market risk are observed to be strongly correlated i.e., 0.671, 0.613, and 0.624 respectively. Whereas the credit risk, operational risk and business risk is observed to be moderately correlated i.e., 0.542, 0.509, 0.559 respectively and there has been observed a positive correlation between the variables. Similarly the p value is observed to be significant at 5% level. As $P < 0.05$, we reject the null hypothesis and accept the alternative hypothesis. Hence there exist a relationship between performance of risk agencies, financial risk, credit risk, operational risk, business risk and market risk.

2nd Objective: To study the impact of risk management factors on rating agencies.

Structure Equation Model: The model in this study was based on the Technology Acceptance Model. First the model was specified and the researcher tested the reliability of the model based on sample data that comprised of all observed variables in the model. The primary task in this model testing procedure was to determine the goodness-of-fit between the hypothesized model and the sample data. As such the structure of the hypothesized model was imposed on the sample data to test how well the observed data fits this restricted structure.

Model Identification: Amos Graphic could be employed to determine the impact of Risk management on organizational performance. In this, the model is analysed and constructs the relationships among the variables simultaneously.



Source: Compiled on primary data.

Note: There are two basic requirements for the identification of any kind of Structural Equation Model: (1) there must be at least as many observations as free model parameters ($df \geq 0$), and (2) every unobserved (latent) variable must be assigned a scale (metric).

The proposed model in this study is an over-identified model with positive degrees of freedom as shown in table drawn from the AMOS output. In this model there are 21 distinct sample moments from which to compute the estimates of the default model, and 18 distinct parameters to be estimated, leaving 3 degrees of freedom, which is positive (greater than zero). Hence the model is an over identified one.

Table – 2: Computation of degrees of freedom (Default model)

Number of distinct sample moments:	21
Number of distinct parameters to be estimated:	18
Degrees of freedom (21 - 18):	3

Source: Compiled on primary data.

Model Evaluation Criteria: Goodness of Fit: In the below table NPAR stand for Number of Parameters, and CMIN is the minimum discrepancy and represents the discrepancy between the unrestricted sample covariance matrix S and the restricted covariance matrix. DF stands for degrees of freedom and P is the probability value.

Table – 3: Evaluation Criteria Model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	18	7.066	4	.132	1.766
Saturated model	21	.000	0		
Independence model	6	14.127	15	.516	.942

Source: Compiled through AMOS version 24 of SPSS on primary data

The above table depicts the goodness of fit. In this model the value of chi square (7.066) is observed to be smaller as compared to the value of the independence model (14.127) and Similarly, Probability value for the model seems to be significant at 5% level (<0.05). Hence the table concluded that model is fit. The various common model-fit measures used to assess the models' overall goodness of fit as explained below

Table – 4: Fitness Model

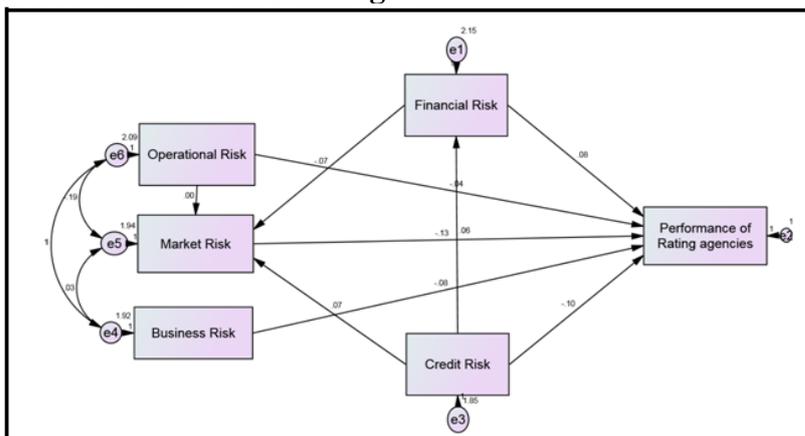
	Fit statistics of the Measurement model	
Fit statistic	Recommended	Obtained
Chi-square		7.066
Df		3
Chi-square significance	$p \leq 0.05$	0.000
GFI	<0.90	0.927
AGFI	>0.90	0.932
NFI	>0.90	0.917
RFI	>0.90	0.937
CFI	>0.90	0.974
TLI	>0.90	0.911
RMSEA	<0.05	0.000

Source: Compiled on primary data.

The above table illustrate that Goodness of Fit Index (GFI) is obtained 0.927 which is above the recommended value 0.90. The Adjusted Goodness of Fit Index (AGFI) also seemed to greater than the recommended value (0.932 >0.90) as well. Similarly, the Normed Fit index (NFI), Relative Fit Index (RFI), Comparative Fit Index (CFI), Tucker Lewis Index (TLI) are also observed to be above recommended value and their respective values as 0.917, 0.937, 0.974, 0.911.

Whereas Root mean square Residual (RMSEA) seems to be less than the recommended value (0.000 < 0.05), hence the model shows an overall acceptable fit. It can be concluded that the model fits the sample data very well.

Structural Model Path Diagram



Source: Compiled through AMOS version 24 of SPSS on primary data

The research model exhibited good fit with the observed data as mentioned above. All the different stages hypothesized path seems to be significant at 5 % level (p- value <0.05) and reveals the standardized regression weights of the output as below table.

Table – 5: Regression weights

			Estimate	S.E.	C.R.	P	Label

			Estimate	S.E.	C.R.	P	Label
Financial Risk	<---	Credit Risk	.058	.097	.597	.000	Significant
Market Risk	<---	Financial Risk	-.068	.085	-.796	.006	Significant
Market Risk	<---	Credit Risk	.074	.092	.805	.001	Significant
Market Risk	<---	Operational Risk	-.001	.014	.593	.000	Significant
Performance of Risk agencies	<---	Operational Risk	-.037	.087	-.430	.007	Significant
Performance of Risk agencies	<---	Business Risk	-.081	.090	-.905	.006	Significant
Performance of Risk agencies	<---	Credit Risk	-.096	.092	-1.044	.006	Significant
Performance of Risk agencies	<---	Financial Risk	.076	.085	.888	.005	Significant
Performance of Risk agencies	<---	Market Risk	-.126	.090	-1.407	.009	Significant

Source: Compiled through AMOS version 24 of SPSS on primary data

Further table reveals that credit risk is influenced by Financial Risk ($\beta = 0.058$), followed by credit risk is influenced by Market Risk and performance of risk agencies with their respective beta value as 0.074. Business risk and market risk are influenced by performance of risk agencies shown Beta value as -0.081. Operational risk is influenced by performance of risk agencies as -0.037, financial risk is influenced by market risk and performance of Risk agencies as 0.076. P-value seems to be significant at 5% level which indicates that Null hypothesis has been rejected and Alternative hypothesis has been accepted i.e., there is an influence of risk management on organizational performance.

The structure equation model has been framed to study the impact of marketing stimuli on the performance of Risk agencies parameters. The Root mean square Residual (RMSEA) seems to be less than the recommended value ($0.000 < 0.05$), Hence the model shows an overall acceptable fit.

Findings of the Study

1. The study found with the bivariate correlation and the p value is observed to be significant. The study result indicated that the financial risk (0.613) and market risk (0.624) are observed to be strongly correlated with the performance of the credit rating agency.
2. The study found with the bivariate correlation and the p value is observed to be significant. The study result stated that the Credit risk (0.542), Operational risk (0.509) and business risk (0.559) are observed to be moderately correlated with the performance of the credit rating agency.
3. The study found with the structure equation model that the p value is observed to be significant at 5% level. The Credit Risk impact on the Financial Risk (0.058), Market Risk (0.74), and performance risk agencies is negative with (-0.096).The Financial

Risk impact on Performance risk agencies(0.076) is and market risk is negative with(-0.068).

4. Operational Risk has got negative impact on market risk and performance of risk agencies respectively (-0.001) (-0.037). Whereas the business risk and market risk has a negative impact on performance of risk agencies respectively (-0.081) (-0.126).

Conclusion

The study has been focused on the credit rating agencies risk elements impact on the performance of the rating agency. The study has considered the primary data by using the convenient sampling keeping in view of five risk factors. The bivariate correlation has been applied to measure the relationship between the risk factors and the credit rating agency performance. The study result stated that the all the selected factors are having the strongly to, moderate correlation with the performance of the rating agency. The structure equation model has been applied and the result reflected that financial risk is having the positive impact on the performance of the agencies. Hence there is a need to do further research in this area by considering the secondary data along with the primary to know the impact on the risk and performance of the rating agencies in India.

References

Guttler and Behr (2016), Bank Standalone Credit Ratings, BIS working paper No: 542, Pg. No: 215, Bank of International Settlement.

Czarnitzki and Kraft (2007): Are credit ratings valuable information, 2007, vol. 17, issue 13, 1061-1070

Christina E. Bannier and Marcel Tyrell (2005): Modelling the role of credit rating agencies- Do they spark off a virtuous circle, No. 160, November 2005, ISSN 1434-3401

Valentin Delano and Felipe Jaque (2005): The Systemic Regulations on *Credit Rating Agencies*, 2005 July, Vol: 12, Series-3, ISSN 1573-1890

Nachane D M and Saibal Ghosh (2004): Credit Rating and Bank Behaviour In India: Possible Implications of The New Basel Accord, Vol: 49, series-9.

A study on issues related to establishment and management of social enterprise

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Dr. Vinod S Puranik**

Abstract

The article aims at identifying and addressing some important areas a social enterprise faces, like establishment, credibility, sustainability, management, developing management framework and the need of having an exclusive policy related to social enterprise in India. A detailed literature review has been undertaken and it is observed that there is a strong need of intervention in developing a cohesive environment of social enterprises. Social Enterprise needs serious recognition and possible support from all related agencies. Social Enterprise is needed for addressing social needs parallel to the efforts of the government. The report is fallout of the discussion and ideas shared by various social enterprises working on different sectors including education, health, energy, women, child care, finance and many more. The article aimed at opening way for further research in this area and also addresses the important issues faced by the social enterprise.

Keywords: *Social Enterprise, social entrepreneur, social mission, social impact, issues of social enterprise, credibility, sustainability, management, management framework and policy.*

I) Introduction To Social Entrepreneurship

'Social Enterprise' is a very common term familiar to many but vaguely defined. Many times it is often understood as a Non-Government Organization, philanthropic activity, non-commercial activity or a trust that deals with service in a non-monetary fashion. Absence of a standard definition often leads to confusion of the concept of social enterprise.

- What exactly is a social enterprise?
- How social enterprise is different from a commercial business organization, NGOs etc?
- What is so social in a social enterprise?
- Does philanthropy, charitable activities constitute a social enterprise?
- What is the legal structure of a social enterprise?

Many experts, researchers, academicians and champions in the field of social enterprise have made an attempt to give meaning and new direction to this important subject. It is always a challenge to derive a standard definition as there is no legal form. But a common understanding has been generated that are commonly used and it has helped in identifying and understanding social enterprise.

A business with primarily social objectives whose surpluses is principally reinvested for that purpose in the business or community, rather than being driven by the need to maximise profits for shareholders and owners. (Gov.UK) Social enterprises are businesses that trade to tackle social problems, improve communities, people's life chances, or the environment. They make their money from selling goods and services in the open market,

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but they reinvest their profits back into the business or the local community. (Social Enterprise UK)

A social enterprise is a business driven by a social or environmental purpose. As with all business, social enterprises compete to deliver goods and services. The difference is that social purpose is at the very heart of what they do, and the profits they make are reinvested towards achieving that purpose. (School for Social Entrepreneurs)

A social enterprise is a business that has both social and commercial goals. What makes it different from other enterprises is that it places a firm emphasis on tackling social problems. This positive impact is as important to its business objective as any financial bottom line.

'Individuals with entrepreneurial solutions to social and economic problems.' They 'cover a range from starting small community organization building social capital and cohesion, right through the scale to major ventures delivering social and economic impact, and including people with breakthrough innovation models.' The Global Social Entrepreneurship Network¹

A social entrepreneur is someone who works in an entrepreneurial manner, but for public or social benefit, rather than to make money. Social entrepreneurs may work in ethical businesses in the private sector, governmental or public bodies, or the nonprofit and community sector. (School for Social Entrepreneurs)

Ashoka.org: Social entrepreneurs are individuals with innovative solutions to society's most pressing social problems. They are ambitious and persistent, tackling major social issues and offering new ideas for systems-level change. Bill Drayton, Ashoka Founder says, "Social entrepreneurs are the essential corrective force. They are system-changing entrepreneurs. And from deep within them, and therefore their work, are committed to the good of all."²(Drayton, n.d.)

Gregory Dees identifies four characteristics displayed by social entrepreneurs based on case studies. These being (1) employing a mission to create and sustain social value, (2) recognizing and pursuing new opportunities to support that mission, (3) engaging in continuous improvement, (4) acting boldly without being limited to existing resources, and (5) exhibiting an increase sense of accountability to stakeholders (Dees 1998a) (4) Dees argues that social entrepreneurs make up one group or species within the greater entrepreneurial concept. Social entrepreneur is mostly defined as a special type of entrepreneur with a social mission. Research describes them as individuals who are able to recognize a social problem and uses entrepreneurial strategies to create social change through a business venture (Dees 1998a).

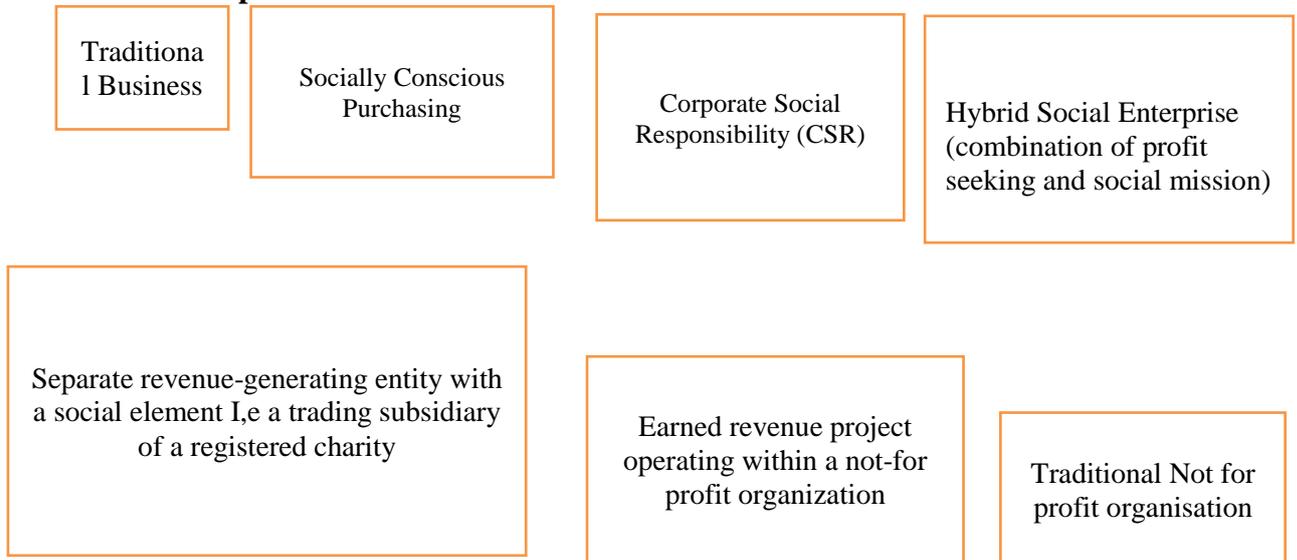
The term social enterprise describes ways of doing business in a more social way with a different approach and mind set. Social enterprises do engage itself to all forms of trades and services like a commercial business organization, profit making company, NGOs, charity organization and the like. The fundamental idea that differentiates social enterprises with a profit-making company is the idea of rendering any form of service to society through its business.

Characteristics of a social enterprise

From the available research findings, opinion and definition propounded by the experts we can draw few important characteristics:

- To have a clearly defined social mission.
- Generate 50% or more of their revenue through trade or selling goods and offering various services.
- Generate revenue to sustain and expand business not for profit making.
- Re-invest the profit generated to their business for further expansion.
- Non-dependence to local/state/central authorities for any grants, subsidy and support.
- More focus and interest towards social mission rather than shareholders expectation.
- Commit to improve life standard of the people involve in its ecosystem.

The Social Enterprise Continuum:



Adapted from the (BC Centre for Social Enterprise, , 2010)

Anyone can establish a Social Enterprise out of passion, interest, commitment or whatsoever but it is pertinent to understand the dimensions involved on both sides i, eadvantages and disadvantages in running a social enterprise. From the literature available few major advantages and disadvantages with regard to social enterprises are drawn which are presented as below: ††

Advantages/benefits for a social enterprise:

- Liberty to address social needs
- Cost effectiveness
- Easy to raise capital through Government schemes and CSR (provided credibility of org) traditional funding charity, donations, seed funding,
- Good work. Easy promotions. Word of mouth
- Support from like mind people
- Customised services to select people or environment.
- Financial independence
- Grow their activities
- Escalate their abilities and improve further
- Pragmatic approach

1 (2016), *An Introduction to Social Enterprise, Community Southwark*

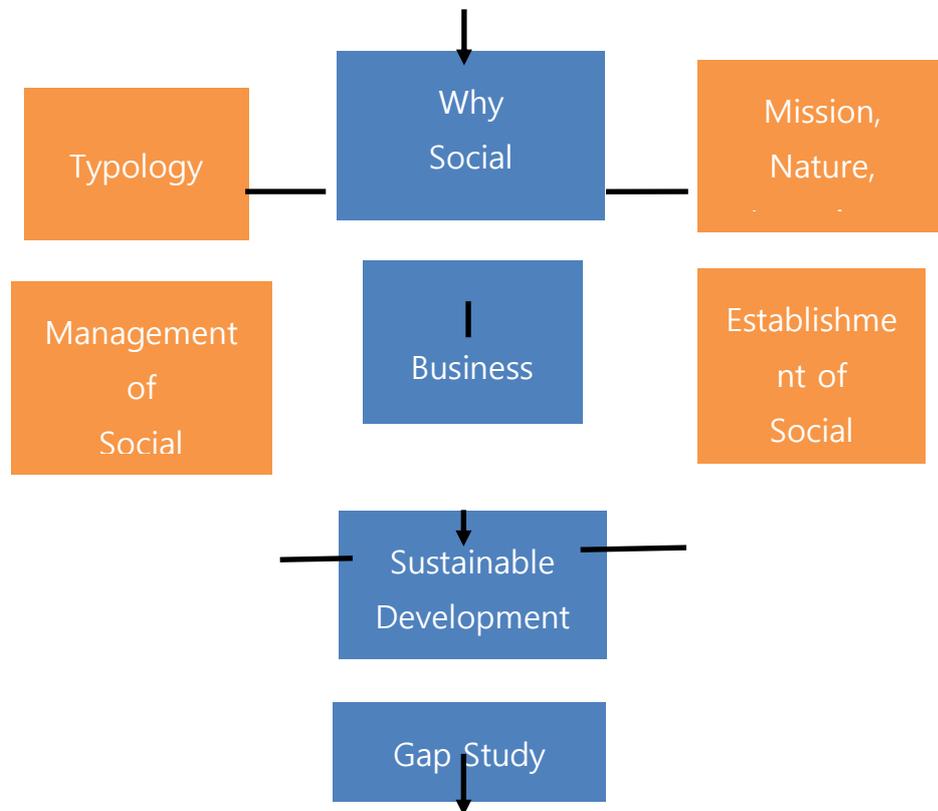
2) <https://www.ashoka.org/en/focus/social-entrepreneurship>

- Flexibility business models. Can adapt to new changes and growing needs
- Revenue generated can ploughed back to business
- Provide economic opportunities to local people
- Address local needs and help in improving standard life styles
- Change that are driven to social impact

Disadvantages/barriers:

- Difficulty in choosing the right legal status – risk of losing not-for-profit status
 - Risk of arising conflict of interest – in areas of revenue generation, profit making, volunteering, business policy, market strategy etc.
 - Time and money required. Less support
 - Fear of losing before taking off
 - Lack of business skills and experience. Each SE may be new on its way
 - No quick on return on investment. Sustainability issue
 - Challenge of coping with the new business, working culture, change
 - Competition with the big and powerful profit-making companies
 - Sustained effort to hold on the customers
 - Innovate or perish. Huge task to update and engage with latest trends to stay in market
 - To stay focus and engage with the multiple bottom line – financial, social and environmental challenges.
 - Following up with the Government rules and regulations
 - Not clear and standard policy of Government on Social Enterprise
- Social Enterprise - A diagrammatic representation

Social
Enterprises



Legal forms of Social Enterprise in India

In the process of establishing a social enterprise it is a crucial decision for every entrepreneur to decide the legal form/structure of his/her firm. There could be number of reasons and its related implicating factors involved in deciding which legal form suits best and why it should be given importance. Few core issues to be considered while choosing the format of social enterprise could be as:

- Funding and source of revenue generation
- Subsidies, tax exemption and tax liabilities
- Ease of doing business
- Proximity, accessibility and affordability
- Distribution of profits (if any)
- Governance structure
- Reporting responsibilities
- Ownership pattern

Few countries like the USA and the UK have got plenty of flexibilities and option in terms of legally structuring a social enterprise. USA has got few legal structures which are designed keeping in mind the special needs of a social enterprise. They are Low Profit Limited Liability company (L3C), Benefit Corporations, Certified Benefit Corporations (B Corps) and Flexible Purpose Corporations₃ (Greenberg, 2017)

Here in India there are limited options in terms of legal structure. In the present context, four types of legal structures are available that a social entrepreneur can opt for according to his choice and conveniences. It is important to understand the advantages and disadvantages of the available legal forms/structures before the entrepreneur chooses the one for his organisation. Below mentioned are the forms of organisation along with the advantages and disadvantages associated with it.

a) Non Profit or Public Charitable Organisation

Non-profits or public charitable organisations can be registered as a “Trust” (under the Indian Trusts Act, 1882), a “Section 25 company” (under the Companies Act, 1956 or as a “Society” (pertaining to Societies registration of the concerned state). The biggest benefit of registering as a non-profit organisation is the eligibility to get tax benefits under the Income Tax Act of 1961 and they can also accept foreign donations under the Foreign Contribution Regulation Act (FCRA).

The non-profit models are well suited for start-ups social enterprise as they do not expect immediate revenues from their activities and they don't have a long gestation period before they start to accrue revenues.

Advantages of Non Profit or Public Charitable Organisation:

- Since it has less burden of financial return it can focus more on creating social impact.

Advantages of Non Profit or Public Charitable Organisation:

- Since it is operating with limited resources and less return, it is always a challenging process to mobilise funds.

b) The for profit social enterprise

In India there are many choices for setting up a for profit social enterprise. There are five different types of for profit enterprises viz sole proprietorship, partnership, limited liability partnership, private firm and co-operative. The entrepreneur can adopt any of the structure based on his/her convenience. This type of social enterprise is considered to be best suited for those who are looking for growth and profit. A study undertaken by “Intellcap” found that 80% (out of total sample size for survey) of Indian social enterprises prefer to structure themselves as for profit private companies (PLCs). Few good examples of such social enterprises in India are Vaatsalaya Healthcare, Ujjivan Microfinance and DLIGHT. Such social enterprises have a product or services that are offered in market with a fair pay. And they can also accept funding from Venture Capitals and also can issue shares to public.

Advantages of the for profit social enterprise:

- Ability to raise funds through Venture Capitals. Issue share to public. And also can invest in technology and infrastructure development.

Disadvantages of the for profit social enterprise:

- Focus on profit making can often lead to deviate from the social objective and can annoy the investors, shareholders and stakeholders

c) Hybrid Structures

Hybrid structures incorporate features of both non-profit and for-profit simultaneously. These types of social enterprises starts with a non-profit and later ventured into profit making areas by floating an umbrella or sister concern profit making enterprise. Reasons are many; it may be lack of fund to run the organisations. A very fair reason could be to enable generate funding through venture capitals and other sources. Few good examples of such organisations in India could be “Head Held High Foundation”, “Fractal Foundation”, “Magic Wand Empowerment” etc. It is considered a good option and a great model as

social enterprises can attract both donations and grants and at the same time can generate funding from venture funding.

Advantages of hybrid structures:

- It can have access to both donations and grants and at the same time can generate funding from venture funding. Also it can focus on both service and commercial activities.

Disadvantages of hybrid structures:

- Focussing on both areas could be a serious issue resulting to compromise of interest and conflict on building a common organisational culture

Differences between SE and Profit-making Company

Both social enterprise and profit-making company looks similar in many ways but it would be wrong to see both in same lens. Both approaches aimed at fulfilling the needs of market and to earn a sustainable profit. The main differences between the two could be social enterprises focuses beyond profit generation. Social enterprise is keen on creating social impact and intend to bring a positive change to the society⁴. The positive approach of creating social impact makes social enterprises differentiate between profit-making companies, NGOs, CSR activities etc.

Differences between Entrepreneurship and Social Entrepreneurship⁴:

Entrepreneurship	Social Entrepreneurship
Financial Profit	Revenue to sustain
Knows demand – Create products/solutions	Knows problem – Offer solution
Goes with market	Opportunities during market failure
Profit Motive	Create Social Values
Create ideas/products	Innovation
Market centric/product oriented	Focus on change/value creation
Opportunity recognition	Issues recognition

Characteristics of a Social Enterprise

At certain point of time a social enterprise may be in a start-up phase. Some may be well established. There are various opinions to define what constitutes a social enterprise. The general opinion of the scholars and luminaries of social enterprises share similar belief on the idea of social enterprise provided the organisations meets the following characteristics:

1. The primary goal of the social enterprise is to solve a social problem through its product or services rather than to make profit.
2. The enterprises engages onto business through trading goods and services with the objective of generating fund for sustaining the business and achieve its social mission.
3. The enterprise is an independent organisation but not a subsidiary of another enterprise.
4. The enterprise runs in an inclusive governing fashion with participation of its stakeholders and representation from shareholders, beneficiaries, customers, employees etc
5. The enterprise practices the asset lock system which means that profit generated from the business is reinvested in the social mission and assets cannot be sold in order to benefit shareholders.

††

II) Literature Review

The research is a continuation of 100 different studies done on the area of social entrepreneurship so far. It seeks an addition in clarity on thought and in action. Lot of research work and literature has been published in the area of establishment and management of social entrepreneurship. The research aims at finding the core issue of how social enterprise is managed and making it more credible and sustainable through right application of management framework. An attempt is also made to understand the effect of how government policies affect social enterprise.

a) Establishment of Social Enterprise

Social entrepreneurship is relatively a new term but it has been practiced from a long year. It came in to notice to the academic field just a few decades ago. Its usage can be found throughout the history. In fact, there were several entrepreneurs who established social enterprises to eliminate social problems or bring positive change in the society. Vinoba Bhave, the founder of India's Land Gift Movement, Robert Owen, the founder of cooperative movement and Florence Nightingale, founder of first nursing school and developer of modern nursing practices might be included in this category. They had established such foundations and organizations in 19th century that is much before the concept of Social Entrepreneurship used in management.

There were entrepreneurs during nineteenth and twentieth centuries that made efforts to eradicate social evils. Apart from this, there are many societies and organizations that work for child rights, women empowerment, save environment, save trees, treatment of waste products, etc. Apart from addressing the social issues, social entrepreneurship also includes recognition and addressing the environmental problems and financial issues for rural and urban poor.

These days, the concept of social entrepreneurship has been widely used and that too in different forms. The establishment of Grameen Bank by Muhammad Yunus, Ashoka: The Innovators for the Public by Bill Drayton, Youth United by Jyotindra Nath, Rand De by Ramakrishna and Smita Ram, SKS Microfinance by Vikram Akula and Roozi.com by Nick Reder, Brent Freeman and Norma La Rosa has popularized the term.

Peredo and Chrisman's (2006) Academy of Management Review work provides an example for future theoretical developments extending the concept of social entrepreneurship. They extend research in social entrepreneurship to develop the concept of community-based enterprise, combining elements from commercial entrepreneurship, anthropology, and social network theory to show how community-based enterprises may differ from the standard notion of entrepreneurship. In their model, economic factors are integrated with natural and social capital to transform a community into both an entrepreneur and an enterprise. Their model suggests that social and economic stress, incremental learning, the level of social capital or resources, and community size is key determinants of the emergence of community-based enterprises.

According to McWilliams and Siegel, 2001, Social value creation by firms has been studied from two broad perspectives. First there is the business and society literature who

††3. <https://masur.com/lawtalk/benefit-corporations/>

4. Daria Kelly Uhlig (2018), *Differences Between Social Entrepreneurs & Business Entrepreneurs*

5. (2012) <https://ottawa.impacthub.net/2012/12/04/social-vs-business-entrepreneurship/>

looks at 'the actions that appear to further some social good, beyond the interests of the firm, required by law'.

According to Christie and Honig, 2006, the larger area of study next to the CSR research stream, social entrepreneurship literature emerged from the management and entrepreneurship literatures, looking at entrepreneurial activity as a source of social value creation.

Social entrepreneurship or "entrepreneurial activity that primarily serves a social objective" has been on the rise in recent decades (Austin et al., 2006; Roberts and Woods, 2005; Peredo and McLean, 2006; Peredo and Chrisman, 2006).

Social entrepreneurship originated from the non-for-profit sector (Dees, 1998; Johnson, 2000; Mort et al., 2003).

Social entrepreneurship is seen as a response to diminishing government involvement in the economy and society (e.g., Sharir and Lerner, 2006; Perrini and Vurro, 2006; Den Hond and De Bakker, 2007; Nicholls, 2006, Sullivan, 2007; Spence and Rutherford, 2001) and extended rapidly to the private and public sector (Johnson, 2000).

Socially responsible companies are those, whose primary goal is profit (Carroll, 1999), whereas, social entrepreneurs emphasize social value and economic value creation as a necessary condition to ensure (financial) viability (Dorado, 2006; Schuler and Cording, 2006).

To date, there are different approaches to social entrepreneurship (Mair and Marti, 2006, Peredo and McLean, 2006; Dorado, 2006) and there is not one universally accepted definition of what constitutes a social entrepreneur (Shaw and Carter, 2004; Harding, 2004; Dorado, 2006).

Mair and Marti (2006) contest the views that social entrepreneurship is limited to the non-profit sector on one hand or to socially responsible actions of mainstream business practice on the other. They conclude that social entrepreneurship refers to a means to tackle social problems and catalyze social transformation.

b) Management of Social Enterprise

SEs that adopt innovative business models with for-profit entities account for three-fifths of all SEs. For-profit models also include collective ownership structures such as cooperatives and producer companies; Waste Ventures is one such organization that "incubates solid waste management companies owned and operated by waste pickers." About one-fifth of SEs adopt not-for-profit structures, such as Aravind Eye Care Hospitals, which is registered as a trust, and sustained by charging users for affordable eye care. About 20% of the models can be categorized as hybrid, wherein two or more entities, while not legally bound, work in close synergy with each other, usually because they are both founded by the same individual or individuals. The Cashpor Group, which comprises both for-profit and not-for-profit entities, is a prime example of this.

A growing trend observed in the Indian SE space is the transformation of many not-for-profit models into for-profit models, as these are in a better position to secure financing and scale over time. This was especially true of non-profits in microfinance, where the revenue model was clear early on. Many leading microfinance institutions (MFIs), such as SKS and Spandana, were registered initially as non-profits and subsequently transformed into for-profit companies. An initial assessment of the SE financing landscape indicates that the key sources of capital for SEs are non-institutional debt, equity (mostly self-finance), institutional debt, and grants.

The key sources of equity in the SE space are early stage impact investors or entrepreneurs' capital (both equity and debt). Traditional private equity investments in SEs are rare, and are largely limited to the more developed sectors such as microfinance, health, and agribusiness. This is primarily due to the fact that the markets are developing, business models are just starting to show proof of concept, trans-action costs are high for investors, and there is limited data available to help understand the space.

Although debt is a major source of capital for many SEs, access to institutional debt (such as bank loans) is limited. With improving access to equity financing, access to institutional debt is also expected to improve over the next few years. In order to sustain their growth, SEs need to access main-stream capital. Investor interest is gradually increasing as early investors are starting to see returns, and high growth is seen across sectors. SEs that are successful both from profitability and impact points of view now exist across key sectors.

c) Management Framework Of Social Enterprise

Model for choosing the most suitable CSE strategy and research objective Correspondingly, we use this model in the present thesis with the purpose of determining which is the best CSE strategy that should be adopted by corporations (multinationals) that seek to achieve organizational development through socially responsible principles according to their specificities. Therefore, the general objective of the research is to determine which of the three alternative strategies is the most suitable according to the importance the evaluators place on the specific criteria. The corporate social entrepreneurship strategies from among which the experts (business developers) can choose are: CSE as market development tool, CSE as transformational innovation tool and CSE as local development tool. According to the findings from the previous chapters, we concluded that the next four criteria should be taken into account in order to make such a decision: return on investment (ROI), interest towards solving communities' problems, pre-entry knowledge and degree of novelty.

The field is having fragmented literature and there is lack of consensus regarding the framework and theory of Social enterprise (Certo and Miller, 2008; Hill et. al., 2010; Mair and Marti, 2006; Short et. al., 2009). As such, social enterprises eliciting a significant academic curiosity across array of fields like management, public policy, entrepreneurship, sociology and many others (Austin et. al., 2006; Certo and Miller, 2008).

d) Social Enterprise Policy In India

Existing legal framework for social enterprises in India

Unlike many other countries, SEs in India has limited options in terms of legal structures they can adopt. Typically, SEs in India can take either of the following legal forms:

- Non-profits- or Charitable Organizations- can register themselves under the Indian Trusts Act (1882); Section 25 of Companies Act (1956); State Society registration. E-g "Digital Green"; "Teach for India" "Akshaya Patra" etc.
- For-profits- Can adopt either of the structure; sole proprietorship, partnership, limited liability partnership, private firm and co-operative. E-g, Vaatsalya Healthcare", dLight etc.
- Hybrid structures- incorporating features of both the above structures simultaneously. E-g; "Head Held High Foundation"; "Fractal Foundation" etc.

Lundstrom and Stevenson (2005)

A Policy Framework for Social Entrepreneurship in India Stevenson found that entrepreneurship policy is different from country to other. The researchers came up with a

framework of entrepreneurship policy which depicts the relationship between the determining variables (population growth, level of economic development, growth in per capita GDP, growth in immigration rate etc.) and entrepreneurship activities. Further, Lundstrom and Stevenson (2005) stated that the desired entrepreneurship policy outcome means an increased level of entrepreneurial activity in an economy. If entrepreneurship is a system, then the role of the Government and institutions is to foster environment that will produce a continuous supply of new entrepreneurs as well as to offer conditions that will enable them to start and grow enterprises.

The entrepreneurship process model introduced by GEM team focused on the conditions that shaped entrepreneurship, and its direct economic impacts. The GEM entrepreneurship framework described the framework conditions for e-g. the elements of environment, opportunities, motivation and capacity to shift the focus from conventional model to entrepreneurial model (Reynolds et. el., 1999).

Research conducted by Kim et. el., (2010) examined the effects of finance, labour and tax policy and other factors on entrepreneurial activity. The entrepreneurship policy is classified by two major dimensions i-e, the unit of analysis and level of analysis. The unit of analysis focus on the relation between individual characteristics like personality traits, motivation, educational background etc. and entrepreneurship outcome and the level of analysis can be the regional or country wide focus of macro factors of entrepreneurship outcome.

Dana (1992) developed a framework of public policy on entrepreneurship by examining the role of public policy in affecting the entrepreneurship environment in six different economies. The study examined and classified the six different model based on the level of Government intervention and the affinity for entrepreneurship. The study found that the social value as attached to entrepreneurship and the level of Government intervention are two important factors affecting each other and suggests that a Government which values entrepreneurship, coupled with laissez-faire- style policy of Government can serve as an asset in an economy. Thus, in less-developed economies, where there is low social value attached to entrepreneurship, the focus should be on entrepreneurship development programs.

Thus the policies which can reach, educate and activate people at the local level are a must advocate (Dana, 1992)

Dana (1995) in a further study examined and classified the policy styles of thirteen Caribbean economies based upon the nine theoretical positions in an integrated framework. The study revealed that the economies with high levels of Government intervention and higher economic regulation coupled with lower entrepreneurial values had comparatively lower GDP's. While on the other hand, the economies with higher entrepreneurial values, minimum regulations and intervention had highest per capita GDP (Dana, 1995).

Research Gap

1. Social Entrepreneurship is still a vague subject and is poorly understood concept (Martin and Osberg, 2007) whose practice raises thorny ethical concerns (Fowler, 2000). These issues reflect the unique values that social entrepreneurs hold and the search processes they follow in identifying, evaluating and exploiting opportunities.

2. The legal status of social enterprises is still not yet recognise properly. As a result fund raising is difficult as there is an issue of credibility and authenticity.

3. Social entrepreneurship is also keen on recognition and addressing the environmental problems and financial issues for rural and urban poor. The primary task of social entrepreneurs is addressing social issues and systematic intervention.

4. Community plays an important role in the success of any social enterprises. It has been proven with the success theory of community-based enterprises which differ from the standard notion of entrepreneurship.

5. The size of the specific community is key determinants of the emergence of community-based enterprises.

6. Social entrepreneurship is seen as a response to diminishing government involvement in the economy and society. It gives an ample opportunity for the entry and expansion of private participation.

7. The subject lacks in defining universally accepted definition of what constitutes a social entrepreneur.

8. Social entrepreneurship is limited to the non-profit sector. It is not very clear on how a social entrepreneur function in a for profit business model.

9. It is easy for any for profit business models to secure financing since it is largely considered credible and sustainable.

10. Key sources of capital for SEs are non-institutional debt, equity (mostly self-finance), institutional debt, and grants.

11. There are limited data and literature to show proof that the potential of Social Enterprises. Social enterprises space and market are still developing, business models are just starting to show proof of concept and transaction costs are high for investors.

12. Debt is a major source of capital for many SEs, access to institutional debt (such as bank loans) is limited. Access to equity financing, access to institutional debt is also expected to improve over the next few years.

13. Growing recognition and support for young start-ups but there is a lack of awareness about social enterprises.

14. There is a huge segment of youth population interested in establishing social enterprises but lack of skills and mentorship is a major challenge.

15. Women social entrepreneurs face challenges in securing funding

16. Developing an evolving database of social enterprises to foster better networks, leanings and assist future research in the sector would be valuable. Such data is collected, but often it is either static (so it quickly goes out of date) or not public. To date, there has been limited appetite to fund a public and regularly maintained national or global database.

17. As such there is an absence of regulatory framework or any formal recognition system for SEs in India. The Indian social entrepreneurs are majorly deprived of formal sectorial benefits like tax breaks or incentives etc.

18. Even very little is known about their management and organization and we do not have a comprehensive picture of their processes till date. The policies pertinent to the creation, sustenance, and management of SEs are yet to be crafted. Surprisingly, a majority of the Indian social entrepreneurial efforts stay with meager results. They go unorganized and unnoticed by dint of poor support and recognition they are getting from multiple agents. They stay with financial difficulty on a self-employed scale.

19. An extant review of the existing research on Social Enterprises reveals the lack of a comprehensive policy framework for understanding the complexities of the phenomenon and its broader determinants. Although, Social Enterprises has been regarded as a socially

good endeavor, it requires definition and thorough elaborations. There are no clear-cut guidelines of how to enhance and regulate the Social Enterprises activities within the nation. Even, there is little or no policy consideration for Social Enterprises ecosystem in the Indian economy. The Government is short of a reliable research base which can be referred for making key policy decisions in the area.

20) Management of Social Enterprises still remains limited and the ownership of such organization lies to an individual or a group of individuals.

21) Management framework of Social Enterprises has been crafted and implemented which also has shown results.

22) A detailed further study is deemed required to address the pressing need of Social Enterprises for policy intervention and develop suitable management models for creating a conducive ecosystem.

III) Research Methodology

Statement of the Problem

- a) The concept of Social Enterprise existed since many years and it has been into practices a various levels and form in our Indian civilization. But the term Social Enterprise gained familiarity in academic sphere recently. There was so standard definition of Social Enterprise even though the concept existed from long. The concept and terminology of Social Enterprise was developed in the UK in the late 1970s parallel to the traditional commercial enterprises. Social Enterprises exists in the middle of the commercial profit-making companies and the voluntary organisation established to serve society. It works with the sole objective to serve society by creating high impact factor in a professional fashion. It seeks to balance with the commercial organisation in terms of revenue generation and sustainability. Social enterprises have been founded by activists seeking to support a particular cause, as well as entrepreneurs who want to use a portion of the organization's earnings to give back to the community. The Organization for Economic Cooperation and Development (OECD) identifies social organizations as being highly participatory in nature, with stakeholders actively involved and a minimum number of paid employees.
- b) The social enterprises aimed at addressing social problems by implementing innovative and creative ideas. Social enterprise faces the similar problem that a profit making company faces in its daily operations and growth. But social enterprise face unique challenges in delivering social value, creating social impact, sustainability, credibility, managing the organisation, sticking to the social mission and policy lapses. It is also found that managing a social enterprise is not an easy thing as it seems to be. The literature reveals that managing a social enterprise needs to have a different approach and a flexible management framework need to be developing based on the feasibility and convenience of the organisation and nature of work. It is also found that policy related to social driven organisation plays a major role in boosting the growth of the social enterprise. Unfortunately at present India doesn't have an exclusive policy on social enterprise? The present social enterprises operate on the shadow of trusts, society and NGO Acts. Many of the social entrepreneur felt the need of having an exclusive policy for social enterprise in Karnataka and in India at large.
- c) The research is undertaken with an objective of addressing the critical areas social enterprises faces. It seeks to explore the important areas in managing a Social Enterprise. A survey is undertaken with 100 respondents representing social enterprises

working in various sectors in Karnataka. It is an empirical study based on first-hand information and also from literatures based on various reliable sources.

Methodology

The research undertaken is a blend of both quantitative and qualitative approach. It uses quantitative methods to evaluate the large number of variables and opinion. Out of 100 samples collected, 80 questionnaire are collected from first hand respondents to generate data on the work carried so far, production, failure rate, policy related issues and many more. The response is collected through online.

For understanding at higher level of management and policy related issues direct interaction was taken up with 20 social entrepreneurs. The qualitative survey method was used to conduct interviews with social enterprises to understand their opinion and experience on the establishment, management related issues and challenges faced by them and their approach in running the organisation and also on recommendation of having an exclusive social enterprise policy.

So, this survey is conducted with a blend of both quantitative and qualitative methods to understand the various factors and approach of document measurable social trends and how it impacts the whole process of social enterprise.

IV) Findings & Discussion

- a) It is interesting to learn that there are many people who have developed keen interest in establishing social enterprise. They work with lot of passion and interest with a commitment and larger objective to bring a positive change in the society.
- b) Many social entrepreneurs felt that, in the early days of establishing the social enterprise things are vague everything appears beautiful and interesting.
- c) Social enterprises face serious issues related to establishment in terms of managing the establishment, generating revenues, sticking on their stated social mission, maintaining credibility, making sustainable growth, bringing innovation and innovative practices.
- d) During interview, one CEO remarked that their organization follows "Hybrid structure" and they are considering a "Robin Hood model" of business whereby income generated from commercial activities is used to provide subsidized services for the disadvantaged group.
- e) Social enterprise looking to offer services such as employment training, education, health, finance etc. finds in a competitive situation with the commercial and better of companies.
- f) Nelson Vinod Moses writes in "Your Story" about various ways of funding a social enterprise. According to a study by IntelliSnap, more than 90% of social enterprise claimed they require funding. The provision of getting funded depends on the stage of start-up, type of legal structure and maturity of the idea. The various sources of funding available in India now are seed and angel funding, big social impact venture capitalists, grant funding agencies and debt funding.
- g) Social enterprises find it difficult to stick to their social mission for various reasons. Governance of a social enterprise, if incorporated well, helps safeguard the mission of the enterprise while allowing the management team to meet the demands of such various stakeholders as investors, employees, clients and beneficiaries, as well as comply with public policies and regulations. Yet few social enterprises use governance as a means to reach their highest potential. Likewise, board members of social enterprises often feel that they have more to offer than the social enterprise currently

engages them. This is an egregious missed opportunity. No one governance mechanism fits all social enterprises. Rather, governance should be dynamic and adapt to the changing needs of the management team, the operating and regulatory environment, and the larger goals and vision of the social enterprise over its lifespan. Achleitner et al. (2012)

- h) The growth of a social enterprise is mainly measured from the external beneficiary perspective rather than the internal financial metrics. Sourcing financing, staff retention adjusting to different roles in managing the enterprise and measuring the scale and impact of their business are the primary challenges faced. Hynes, B. (2009). Growing the social enterprise.
- i) Managing a social enterprise is different from managing a commercial enterprise. The standard management theory sometime failed to address the need and functioning of a social enterprise. It is believed by many social business concerns that developing management framework and setting unique standards according to local need and issues is the best thing to be followed and the same has yielded result.
- j) The social enterprise context in India is diverse and growing in size and capacity. It has done so largely without specific government support, but most stakeholders recognise that there is value in identifying bottlenecks which government could help address through policies, strategy documents and dialogue as well as through practical activities and programmes at state and local level. Darko, E., Awathi, D., Gregory, D., & Lynch, A. (2015).
- k) There is a collective feeling that there should be an exclusive policy on social enterprise in India. It is learnt from the supporting agencies that social enterprises fail to get the deserving support as it is not stated properly neither well defined nor organised. Social enterprise needs to be properly defined and effort has to be made to gained recognition from all quarters.

V) Conclusion

'Social Enterprise' is a very common term familiar to many but vaguely defined. Many a time it is often understood as a Non-Government Organization, philanthropic activity, non-commercial activity or a trust that deals with service in a non-monetary fashion. The absence of a standard definition often leads to confusion of the concept of social enterprise. As vaguely defined it has been a challenging job for the aspiring and also for the seasoned business concern to establish, function and manage a social enterprise in India. The literature available in the space of social enterprise helps in understanding critical areas of social enterprise in India. It may be noted that a social entrepreneur faces multiple issues on their journey of managing a social enterprise starting from establishment to developing itself as a reliable organization. It suffers from issues common to funding, strategic management, sticking on its stated mission, sustainability, managing the organisation. It is strongly believed that social enterprises can do better if they manage it on its unique and customised management framework order which is develop according to their needs and situation. It can address local issues in a more logical fashion. The absence of having a well-defined and exclusive social enterprise policy in India needs a rethinking and serious attention. There is a need of social enterprise to be defined properly and effort has to be made to gained recognition from all quarters. It is felt to have an exclusive policy on social enterprise which can boost the promotion of social enterprise and create a conducive ecosystem of enterprises in India.

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VII) References

- Southwark, C. (n.d.). An Introduction to Social Enterprise. Registered Charity No. 1105835. Company limited by guarantee in England and Wales No. 5090324.
- Entrepreneur, S. o. (n.d.). Introduction of Social Entrepreneur. *Glossary School of social entrepreneurs*.
- Southwark, C. (2016). An introduction to Social Entrepreneurs. Dees, J. G. (1998). The Meaning of "Social Entrepreneurship". *The Meaning of "Social Entrepreneurship"*. Duke Innovation & Entrepreneurship.
- BC Centre for Social Enterprise, . (2010). *BC Centre for Social Enterprise*, .
- Greenberg, J. (2017, May). Benefit Corporations and Purpose Driven Commerce. www.masur.com. masur.
- Uhlig, D. K. (2018, June). *Differences between Social Entrepreneurs and Business Entrepreneur*. www.smallbusiness.chron.com.
- Social vs business entrepreneurship. (2012). *Ottawa*. Ottawa.impact.hub.
- Drayton, B. (n.d.). *Social Entrepreneurship: Building the field*. Retrieved from www.ashoka.org: <https://www.ashoka.org/en/focus/social-entrepreneurship>
- (Austin et al., 2., Roberts and Woods, 2., Peredo and McLean, 2., & Peredo and Chrisman, 2. (n.d.).
- Carroll, A. B. (1999). Corporate Social Responsibility: Evolution of a Definitional Construct. *Business & Society*, 38(3), 268–295. <https://doi.org/10.1177/000765039903800303>
- Peredo, A. M., & McLean, M. (2006). Social entrepreneurship: A critical review of the concept. *Journal of World Business*, 41(1), 56–65. <https://doi.org/https://doi.org/10.1016/j.jwb.2005.10.007>
- Zahra, S. A., Gedajlovic, E., Neubaum, D. O., & Shulman, J. M. (2009). A typology of social entrepreneurs: Motives, search processes and ethical challenges. *Journal of Business Venturing*, 24(5), 519–532. <https://doi.org/https://doi.org/10.1016/j.jbusvent.2008.04.007>
- McWilliams, A., & Siegel, D. (2001). Corporate Social Responsibility: A Theory of the Firm Perspective. *The Academy of Management Review*, 26(1), 117–127. <https://doi.org/10.2307/259398>
- Peredo, A. M., & Chrisman, J. J. (2006). Toward a Theory of Community-Based Enterprise. *The Academy of Management Review*, 31(2), 309–328. <https://doi.org/10.2307/20159204>
- Dacin, P. A., Dacin, M. T., & Matear, M. (2010). Social Entrepreneurship: Why We Don't Need a New Theory and How We Move Forward From Here. *Academy of Management Perspectives*, 24(3), 37–57. <https://doi.org/10.5465/amp.24.3.37>
- Christie, M. J., & Honig, B. (2006). Social entrepreneurship: New research findings. *Journal of World Business*, 41(1), 1–5. <https://doi.org/https://doi.org/10.1016/j.jwb.2005.10.003>

Impact of Human Resources Practices on Job Satisfaction: Evidence from Small and Medium Scale Manufacturing Firms in PCMC Area

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Abstract

This study aims at exploring the impact of HR practices on job satisfaction in the context of Pimpri Chinchwad Municipal Cooperation area (PCMC), Maharashtra. A total of 83 responses from 41 manufacturing firms were collected and analyzed objectively. It was found that HR practices have a significant association with job satisfaction. In addition, human resource planning, and training and development were found to have a positive impact on job satisfaction. It was also found that training and development have the greatest impact on job satisfaction. Academicians, researchers, policy-makers, practitioners, students, local entrepreneurs of Maharashtra and other states of India could benefit from this paper by exploring the association between HR practices and job satisfaction.

Keywords: HRM, HR Practices, job satisfaction, manufacturing firms, Bangladesh and developing countries

Introduction

The impact of human resource management (HRM) practices popularly known as HR practices on organizational performance and employee attitudes has been a leading area of research in the developed world for years (Delaney and Huselid, 1996; Huselid, 1995; Katou and Budhwar, 2007; Petrescu and Simmons, 2008)). Dessler (1997) stated that changes in the environment of Human Resource Management require Human Resource (HR) to play a significant role in work-related issues in organizations. These trends include growing workforce diversity, rapid technological change, globalization, and changes in the nature of work such as the movement toward a service society and a growing emphasis on education and human capital. Bailey (1993) has observed that HR practices could enhance the return from employees' efforts, which could lead to gains that are significantly greater than the costs created by this process.

But surprisingly, very limited number of studies has been conducted on HR practices in the context of developing countries in general (Schuler as cited in Budhwar and Debrah, 2001, Singh, 2004, Yeganeh and Su, 2008). Most of the researches on HR practices were done for large scale industries; very few were done for medium and small scale industries. This study has been conducted to fill the existing research gap and to explore the relationship between HR practices and job satisfaction in the context of PCMC area of Maharashtra. Academicians, researchers, policy-makers, practitioners, students, local entrepreneurs of Maharashtra and other states of India could benefit from this study by exploring the association between HR practices and job satisfaction. This study would

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augment the contemporary research and practice of human resource management. Furthermore, it would also be useful for the developed countries as they find India as attractive places for investment due to their large markets, and cheap and skilled workforces.

Research Questions

Specifically, this study was undertaken to explore the answer to the following research questions (RQ):

1. **RQ1:** Is there any association between HR practices and Job Satisfaction?

2. **RQ2:** Do HR practices have any impact on Job Satisfaction?

Objectives

The main purpose of the study was to identify the impact of HR practices on job satisfaction. In order to materialize this objective, the following specific objectives were considered:

1. To identify the various HR practices in Medium and Small scale industries

2. To address the association between HR practices and job satisfaction;

3. To identify the impact of HR practices on job satisfaction;

4. To suggest some measures in order to enhance the HR practices of the selected industrial enterprises.

Literature Review and Hypotheses

HR Practices

Human resource management (HRM) refers to the policies and practices involved in carrying out the 'human resource (HR)' aspects of a management position including human resource planning, job analysis, recruitment, selection, orientation, compensation, performance appraisal, training and development, and labour relations (Dessler, 2007). HRM is composed of the policies, practices, and systems that influence employees' behaviour, attitude, and performance (Noe, Hollenbeck, Gerhart, and Wright, 2007). There are four top models of HRM such as the Fombrun, Tichy, and Devana Model of HRM, the Harvard Model of HRM, the Guest Model of HRM, and the Warwick Model of HRM (Bratton and Gold, 1999). Out of these models, Guest Model of HRM is considered to be much better than other models (Aswathappa, 2008). This model is a fusion of both soft and hard approaches of HRM. Guest proposes four crucial components like strategic integration, flexibility, high commitment and quality that underpin organizational effectiveness.

Strategic integration is the ability of organizations to maintain a fit between the HRM strategy and the business strategy. That means, there must be congruence between business strategy and the HR strategy for the organization to achieve its goals. It focuses on the harder side of the guest model. This is precise because human resources are treated in a similar manner as any other resource with the prime goal of achieving business objectives. Flexibility is basically concerned with the ability of the organization and its people to adapt to the changing business and work environment and to the capacity to manage innovation. Flexibility carries both connotations of hard and soft HRM. Flexibility can be numeric, functional, pay and distancing. Flexibility, in this case, is not only concerned with the need to achieve business objectives but also the need to treat its employees as fairly as possible. High commitment is concerned with the need to have both behavioural commitment, which is the ability to go an extra mile, and attitudinal commitment, which is reflected through a strong identification with the organization. Quality is based on the assumption

that the provision of high- quality goods and services results from a quality way of managing people. The present study selected the HR practices such as HR planning, recruitment and selection, training and development, performance appraisal, compensation, and industrial relations which were incorporated by the Guest Model, and the Society of Human Resource Management, USA (Yeganeh and Su, 2008).

Job Satisfaction

According to Locke (1976) job satisfaction was defined as a pleasing or positive emotional state resulting from the evaluation of a person's job (Haque and Taher, 2008). Job satisfaction is also defined as an individual's general attitude regarding his or her job (Robbins, 1999). Mullins (1993) mentioned that motivation is closely related to job satisfaction. Various factors such as an employee's needs and desires, social relationships, style and quality of management, job design, compensation, working conditions, perceived long- range opportunities, and perceived opportunities elsewhere are considered to be the determinants of job satisfaction (Byars and Rue, 1997; Moorhead and Griffin, 1999). Job satisfaction has a significant influence on employees' organizational commitment, turnover, absenteeism, sluggishness, accidents, and grievances (Byars and Rue, 1997; Moorhead and Griffin, 1999). According to Robbins (1999), a satisfied workforce can increase organizational productivity through less distraction caused by absenteeism or turnover, few incidences of destructive behavior, and low medical costs.

HR Practices and Job Satisfaction

HR practices and job satisfaction are studied widely in different parts of the world. It is assumed that HR practices are closely associated with job satisfaction (Ting, 1997). Because many scholars and practitioners believe that sound HR practices result in a better level of job satisfaction which ultimately improves organizational performance (Appelbaum, Bailey, Berg and Kalleberg, 2000). Steijn (2004) found that HRM practices had a positive effect on job satisfaction of the employees of the Dutch public sector whereas individual characteristics such as age, gender, and education had an insignificant effect on job satisfaction. Gould-William (2003) showed that use of specific HR practices in local government organizations in the United Kingdom (UK) was associated with a greater degree of job satisfaction, workplace trust, commitment, effort, and perceived organizational performance.

Hypothesis 1: H₁: HR practices have a significant association with job satisfaction.

Edgar and Geare (2005) examined the impact of human resource management practices on employee attitudes such as job satisfaction, organizational commitment, and organizational fairness in the context of New Zealand. They identified that HRM practices had a significant impact on organizational commitment, job satisfaction, and organizational fairness. In a study on 66 employees of three manufacturing firms in India, Agarwala (2008) observed that training, one of the major HR practices, was positively correlated with affective commitment. Moreover, Ostroff (1992) observed that job satisfaction influenced organizational performance immensely. Also, Yu and Egri (2005) found that HR practices had a significant impact on the affective commitment of employees in Chinese firms. Again, Petrescu and Simmons (2008) studied the relationship between human resource management practices and workers' job satisfaction in the context of the United Kingdom. They found that several human resource management practices raised workers' overall job satisfaction and their satisfaction with pay.

Hypothesis 2: H₁: HR planning has a significant impact on job satisfaction.

HR planning is defined as the procedure by which an organization ensures that it has the right kind and the right number of human resources at the right place and at the right time (Decenzo and Robbins, 1999). Ahmad and Khalil (2007) compared the HR planning of two banks of Bangladesh - Dutch Bangla Bank Ltd. and Agrani Bank. They observed that neither of the banks had any written HR planning. Aswathappa (2008) argued that an organization should have better HR plans to motivate its employees. Sound HR planning can enhance the job satisfaction of the employees by providing opportunities for the employees to participate in planning their own careers (Weeratunga, 2003).

Hypothesis 3: H₁: Recruitment and selection process has positively influenced job satisfaction.

The recruitment and selection process determines the decisions as to which candidates will get employment offers. The aim of this practice is to improve the fit between employees and the organization, teams, and work requirements, and thus, to create a better work environment (Tzafrir, 2006). Sophisticated recruitment and selection system can ensure a better fit between the individual's abilities and the organization's requirement (Fernandez, 1992). Hunter and Schmidt (1982) concluded that employment stability could be achieved through a selection procedure based on ability. Katou and Budhwar (2007) in a study on the Greek manufacturing firms found that recruitment and selection were positively related to all organizational performance variables such as effectiveness, efficiency, innovation, and quality.

Hypothesis 4: H₁: Training and development positively influence job satisfaction.

Training and development are considered to be the most common HR practice (Tzafrir, 2006). 'Training and development' refers to any effort to improve current or future employees' skills, abilities, and knowledge (Aswathappa, 2008). 'Training and development' has a significant positive impact on employees' job satisfaction (Garcia, 2005). Thang and Buyens (2008) stated that training and development lead to superior knowledge, skills, abilities, attitudes, and behavior of employees that ultimately enhance the excellent financial and non-financial performance of the organizations.

Hypothesis 5: H₁: Performance appraisal positively influences job satisfaction.

Performance appraisal is a systematic process to evaluate the performance of an employee after a certain period. Performance appraisal also influences other HR practices such as recruitment and selection, training and development, compensation, and employee relations. As performance appraisal leads to hike in payment, promotion, and training, it is assumed that better performance appraisal can have an impact on employee job satisfaction.

Hypothesis 6: H₁: Compensation positively influences job satisfaction.

Compensation refers to all types of pay or rewards going to employees and arising from their employment (Dessler, 2008, p. 390). Compensation is very much important for employees because it is one of the main reasons for which people work. Employees' living status in the society, satisfaction, loyalty, and productivity are also influenced by compensation (Aswathappa, 2008). Ting (1997) in a study on the employees of US government found that compensation was one of the most important determinants of job satisfaction.

Hypothesis 7: H₁: Industrial Relations positively influence job satisfaction.

Industrial relations play an important role in establishing and maintaining industrial democracy (Monappa, 2004, p. 9). Better industrial relations can create the appropriate

working environment for all employees that ultimately influence job satisfaction (Khan and Taher, 2008). Moyeen and Huq (2001) studied HRM practices of 92 medium and large business enterprises (public and private sector) located in Dhaka, Bangladesh. They found that only 62% of surveyed organizations had an HR/Industrial Relations (IR) department. Human resource management practices of local private manufacturing enterprises listed under the Dhaka Stock Exchange (DSE) were examined by Akhter (2002). She measured correlation between employees' opinions regarding HRM practices in their enterprises and their age, education, and experience. Mahmood (2004) observed that other than organizational contingencies, the institutional context such as national education and training system, national industrial relations system, regulatory frameworks, and overall societal context had a significant influence on the development of HR practices in Bangladesh. Furthermore, HR practices were found to have a significant impact on affective commitment in context to Bangladesh (Haque & Azim, 2008). Hossain (1995) conducted an in-depth study on the job satisfaction of the employees of commercial banks of Bangladesh. Abdullah (2009) found that job satisfaction had an impact on the productivity of garments workers of Bangladesh. Hossain and Ullah (2009) in a comparative study on the job satisfaction of the employees of public and private banks found that employees of the private banks were more satisfied with their jobs than those of the public banks. Islam, Saha, and Ahmed (2000) evaluated the job satisfaction of women employees in commercial banks of Bangladesh. Haque and Taher (2008) examined the ability of different core job characteristics to influence the level of job satisfaction in terms of gender, marital status, and age in the context of Bangladesh.

Thus, the above review of the literature shows that there have been several studies around the globe focusing on HR practices and job satisfaction. However, studies portraying the impact of HR Practices on job satisfaction in the small and medium scale industries that have not yet received proper attention in India. This study has been undertaken to fill the existing research gap.

Research Design

This study is basically an exploratory study. Exploratory studies are a valuable means of finding out 'what is happening; to seek new insights; to ask questions and to assess phenomena in a new light' (Robson, 2002). It can be linked to the activities of the traveller or explorer (Adams and Schvaneveldt, 1991). Its great advantage is that it is flexible and adaptable to change (Naipul, 1989).

Sampling Design

The sample frame used for this study is the Maharashtra Industrial development cooperation (MIDC) directory. 41 manufacturing unit mostly the small scale Industries were selected as per the convenience of the researcher. Hence, Non Probability sampling is used in this research.

Data Sources and Instrumentation

The study was compiled with the help of primary data and secondary data. Primary data was collected through the personal interview by means of the questionnaire. A total of 83 employees (i.e., two employees were selected from every manufacturing firm) responded through the questionnaire. Moreover, the desk study covered various published and unpublished materials on the subject. A five points rating scales of the questionnaire from strongly disagree (1) to strongly agree (5) were adopted to measure the variables of HR Practices. Job satisfaction was measured by a seven-item questionnaire on five-point Likert

scale [where disagree (1) to strongly agree (5)], this is the single global rating approach (Davidson,1979) as it is believed to be an easier approach to collect data (Haque and Taher,2008; Yu and Egri,2005).

Reliability and Validity

Before applying statistical tools, testing of the reliability of the scale is very much important as it shows the extent to which a scale produces the consistent result if measurements were made repeatedly. This is done by determining the association in between scores obtained from different administrations of the scales. Cronbach's alpha is an imperative measure of internal consistency; it shows just how closely related a set of items are as a group. All the variables have Cronbach's alpha value more than 0.7, hence it can be predicted that the scales were reliable and that they could be used for statistical analysis. If the association is high, the scale yields consistent results, thus it is reliable. Cronbach's alpha is the most widely used method. It may be mentioned that its value varies from 0 to 1 but the satisfactory value is required to be more than 0.6 for the scale to be reliable (Malhotra, 2000; Cronbach, 1951). In the present study, we, therefore, used Cronbach's alpha scale as a measure of reliability.

Table 1. Reliability value of the Scale

Scale	No. of Items	Cronbach's Alpha (α)
1. HR Planning	5	.701
2. Recruitment & Selection	8	.712
3. Training & Development	5	.723
4. Performance Appraisal	3	.620
5. Compensation	5	.853
6. Industrial Relations	5	.833
7. Job Satisfaction	7	0.721

Source: Survey data

From the Table-1, it is seen that the reliability value was estimated to be $\alpha=0.620-0.853$ between the scale. If we compare our reliability value with the standard value alpha of 0.6 advocated by Cronbach (1951), Nunnally & Bernstein (1994); and Bagozzi & Yi's (1988).it was found that the scales used by us are highly reliable for data analysis. Validation procedures involved initial consultation of the questionnaires. The experts also judged the face and content validity of the questionnaires as adequate. Hence, researchers satisfied the content and construct validity.

Data Analysis and Findings

In the present study, the data were analysed in a multiple regression analysis. In this context, a multiple regression was performed, by making use of all the discrete variables (i.e., dependent and independent variables) available in the dataset. The estimation process was based on Ordinary Least Squares (OLS) [i.e., $Y= a + bx$]. For this purpose, we consider the following model specifications, by taking as a dependent variable i.e., job satisfaction (JS) by making HR practices as independent variables:

$$JS = \beta_0 + \beta_1(HRP) + \beta_2(RNS) + \beta_3(TND) + \beta_4(PA) + \beta_5(COM) + \beta_6(IR) + e \dots\dots \text{Model (1)}$$

where: $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ and β_6 are the regression co-efficient;

JS: Job Satisfaction;

HRP: Human Resource Planning;

RNS: Recruitment and Selection;

TND: Training and Development;

PA: Performance Appraisal;

COM: Compensation;

IR: Industrial Relations;

e: error term.

To test how well the mode-1 fit the data and findings, correlation (r), R, R² (Coefficient of determination), variance, analysis of variance (ANOVA) and the t statistic were used. Correlation analysis was performed to find out the pair wise relationship between variables: HRP, RNS, TND, PA, COM, IR and JS. Hence, the results are summarised in Table-2.

Table 2. Correlations Matrix for HR Practices and JS

Variables	HRP	RNS	TND	PA	COM	IR	JS
HRP	1						
RNS	0.385** (0.000)	1					
TND	0.327** (0.000)	0.422** (0.000)	1				
PA	0.472** (0.000)	0.811** (0.000)	0.637** (0.000)	1			
COM	0.328** (0.000)	0.442** (0.000)	0.499** (0.000)	0.515** (0.000)	1		
IR	0.356** (0.000)	0.398** (0.000)	0.331** (0.000)	0.444** (0.000)	0.433** (0.000)	1	
JS	0.326** (0.000)	0.293** (0.000)	0.523** (0.000)	0.315** (0.000)	0.694** (0.000)	0.539** (0.000)	1

Source: Survey data; **Correlation is significant at the 0.01 level (2-tailed)

Table-2 shows that the factors HRP, RNS, TND, PA, COM, and OIR are independently positively correlated with JS and also highly significant at 1% levels. Therefore, Hypothesis 1 of the present study was accepted. Here it is obvious that the maximum correlation (r =0.694) is existed between compensation and Job satisfaction, followed by the association (r =0.539) between Industrial relation and job satisfaction; Training and development and Job satisfaction (r= 0.523); and Human resource planning and Job Satisfaction (r =0.326). It should be necessary to give the highest emphasis on Compensation for superb job satisfaction of employees. Training and development is also crucial for wonderful job satisfaction of employees. Although there has no so influential link (r =0.293) between Recruitment and Selection and Job Satisfaction; and performance appraisal and Job Satisfaction (r=0.315). These were also essential for job satisfaction. HR practices are pair-wise positively correlated with one to another and also statistically significant at P-value 0.000.

Further, a multiple regression analysis was performed to identify the predictors of JS as conceptualized in the model. An enter-wise variable selection was used in the regression analysis and table-3 and table-4 show the summary measure and ANOVA of the model.

Table 3. Predictors of JS - model summary

Model	R	R ²	Adjusted R ²
1	0.780 ^a	0.608	0.492

Predictors: (Constant), HRP; RNS; TND; PA; COM, and IR

Table 4. ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	36.958	5	7.392	11.390	.000 ^a
Residual	49.973	77	.649		
Total	71.333	82			

Predictors: (Constant), HRP; RNS; TND; PA; COM, and IR

Dependent Variable: JS

The HR practices (HRP; RNS; TND; PA; COM and IR) in the above model revealed the ability to predict JS ($R^2 = 0.608$). In this model value of R^2 denotes that 60.8 percent of the observed variability in JS can be explained by the HR practices namely HRP; RNS; TND; PA; COM and IR. The remaining 39.2 percent is not explained which means that the rest 39.2 percent of the variation of JS is related to other variables which are not depicted in the model. This variance is highly significant as indicated by the F value ($F=11.390$ and $P = 0.000$) .An examination of the model summary presented by the table-3 in conjunction with ANOVA, presented by the table-3, indicates that the model explains the most possible combination of predictor variables that could contribute to the relationship with the dependent variable.

Table 5. Coefficients for Predictors of JS

Models	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	β	Std.Effor	Beta		
1 Constant	-.698	1.086		-.643	.523
HRP	.323	.170	.334	1.892	.064
RNS	.160	.342	.079	.469	.641
TND	.184	.043	.226	4.251	.000
PA	-.071	.314	-.056	-.226	.822
COM	.259	.032	.321	5.481	.000
IR	.200	.060	.176	3.316	.001

Source: Survey data

The table-5 shows that Compensation, Training and development and industrial relation are positively influencing Job satisfaction. For compensation, the value of t is 5.481($p=0.000$, $df=77$), for Training and Development the value of t is 4.251 ($p= 0.000$, $df=77$) and for industrial relation the value of t is 3.316 ($p= 0.001$, $df=77$). Thus, the data supported hypothesis 4, 6 and 7. The dataset support compensation, Training and Development and Industrial relation as the main HR practices which affects the job satisfaction. But other predictors Recruitment and selection, Performance appraisal and Human resource planning fall in the area of rejection.

Conclusions

From the above table, it is found that most of the employees find compensation, training and development and industrial relation are the main predictors which affect job satisfaction. Other predictors taken in this study are also equally important for job satisfaction but the dataset fails to accept the alternate hypothesis. The correlation matrix also indicates that only compensation has a strong association with job satisfaction. Other predictors are either moderately or have a weak association between themselves. This indicates that these HR practices were not implemented properly in the small and medium scale enterprises. The employees were either not aware of the benefit of these HR practices or they seem to be ignorant about them. If all the HR practices are implemented properly then the job satisfaction among the employees could have been increased to a higher level which can results in high performance, enhanced productivity and low attrition rate in these enterprises

Recommendations

Although the present study was confined to identify the impact of HR practices on job satisfaction, it may be appropriate to state briefly the policy implications for the study. In this context, the following policy actions may be considered worthwhile for small and medium scale enterprises.

- Organizations should offer extensive training and development programs for employees.
- Employees should be trained to adopt new technology and or develop their career.
- Organizations should go for thorough HR planning
- Organizations should carefully conduct and maintain transparency in the recruitment and selection process.
- Organizations should implement equal employment opportunities. That is employees should not discriminate against female, and minority or old worker.
- Organizations should introduce proper performance appraisal systems and the system should be elaborated to the employees.
- Organizations should provide an unbiased promotion. That is promotion should be provided based on the qualification of employees and /or experience
- Organizations should maintain healthy industrial relations based on mutual trust and confidence of the employers and employees.
- Organizations should induce employees to perform well. This can be achieved by providing the reward, motivations, and other benefits etc.
- Organizations should design working procedure including hours work, overtime payment and an hour's payment.

- A Proper working environment should be designed. In that, the organization should provide adequate facilities for employees to do their works such as appropriate equipment, work breaks, and work sharing.
- Organizations should design a good grievance procedure, disciplinary procedure and separation procedure etc.

Limitations

Like most of the studies this study has its own limitation. The first limitation was a small sample size. There is always the risk of not selecting a sample that is large enough. Likelihood of Type II error increases with small sample size. Secondly, the sampling design used in this research, non- probability sampling (convenience sampling) is used in this study. The chance of biasness increases when we are not giving each sample equal chance to get selected.

Directions for Future Researches

Several suggestions that fruitful for future research emerged from this present study. In order to validate the findings of this study, case study is another interesting approach that can be done by future research. Additionally, the research model of this study can be retested in business organizations, so that the research model can be generalized to other economic sectors.

References

1. Adams, G., Schvaneveldt, J., *Understanding research methods*, (2nd ed.), New York: Longman, 1991.
2. Agarwala, T., *The relationship between workplace training and organizational commitment in manufacturing firms: Evidence from India*. Paper presented at the 7th International Conference on Ethics and Quality of Work-life for Sustainable Development, Bangkok, Thailand, 2008.
3. Ahmad, I., Khalil, M. I., Human resource planning in the banking sector of Bangladesh: A comparative study between public & private bank. *Journal of Business Administration*, Vol.33, No.3&4, pp.23-42, 2007.
4. Akhter, N., *Human resource management in Bangladesh: A study of some local private manufacturing industries*. Unpublished doctoral Thesis, University of Dhaka, Bangladesh, 2002.
5. Aswathappa, K., *Human resource management: Text and cases*. Delhi: Tata McGraw-Hill Publishing Company Limited, 2008.
6. Appellabum, E., Bailey, T., Berg, P., Kalleberg, A., *Manufacturing advantage: Why high-performance work systems pay off*. Ithaca, NY: Cornell University Press, 2000.
7. Bagozzi, R. P., Yi Y., On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, Vol.16, No.1, pp.74-95, 1988.
8. Budhwar, P. S., Debrah, Y. A. (Eds.) *Human resource management in developing countries*. London: Routledge, 2001.
9. Byars, L. L., Rue, L. W., *Human resource management*. USA: Irwin/McGraw-Hill, 1997.
10. Cronbach, L.J., Coefficient alpha and the internal structure of tests, *Psychometrika*, Vol.6, No.3, pp.297-334, 1951.
11. Chittagong Stock Exchange (CSE). *Annual Report*. Chittagong, Bangladesh, 2007.

12. Decenzo, D. A., Robbins, S. P., *Human resource management*. New York: John Wiley & Sons, Inc, 1999.
13. Davidson, W.L. *How to develop and conduct successful employee attitude surveys*. Horsham, PA: The Dartnell Corporation., 1979.
14. Delaney, J. T., Huselid, M. A., The impact of human resource management practices on perceptions of organizational performance. *The Academy of Management Journal*, Vol.3, No.4, pp. 949-969, 1996.
15. Dessler, G., *Human resource management*. New Delhi: Prentice Hall of India Private Limited, 2007.
16. Easterby-Smith, M., Thrope, R., Lowe, A., *Management research: An Introduction*, (2nd ed.), London: Sage, 2002.
17. Edgar, F., Geare, A., HRM practice and employee attitudes: Different measure s-different results. *Personnel Review*, Vol.34, No.5, pp. 534-549, 2005.
18. Fernandez, C.J., Solider quality and job performance in team tasks. *Social science Quarterly*, Vol.73, pp.253-265, 1992.
19. Garcia, M., Training and business performance: The Spanish case. *International Journal of Human Resource Management*, Vol.16, pp.1691-1710, 2005.
20. Gould-Williams, J., The Importance of HR practices and work Place trust in achieving superior performance: a study of public-sector organizations. *International Journal of Human Resource Management*, Vol.14, No.1, pp. 28-54, 2003.
21. Haque, M. M., Azim, M. T., *Affective commitment and its antecedents: An empirical study in the context of Bangladesh*. Paper presented at the 7th International Conference on Ethics and Quality of Work-life for Sustainable Development, Bangkok, Thailand, 2008.
22. Haque, M. M., Taher, M. A., *Job Characteristics model and job satisfaction: Age, gender and marital status effect*. Paper presented at the 7th International Conference on Ethics and Quality of Work-life for Sustainable Development, Bangkok, Thailand, 2008.
23. Hossain, M. M. *Job satisfaction of commercial bank employees in Bangladesh*. Unpublished doctoral Thesis, University of Dhaka, Bangladesh, 1995.
24. Hossain, M. M., Ullah, M. S., Job satisfaction of bank employees: A comparative study between public and private commercial banks of Bangladesh. *Dhaka University Journal of Management*, Vol.1, No.1, pp. 43-62, 2009.
25. Hunter, E.J., Schmidt, L.F., Ability tests: economic benefits versus the issue of fairness, *Industrial Relations*, Vol.21, No.3, pp.293-309, 1982.
26. Hussey, J., Hussey, R., *Business research: a practical guide for undergraduate and postgraduate students*, Basingstoke, Macmillan Business, 1997.
27. Huselid, M. A., The Impact of human resource management practices on turnover, productivity, and corporate financial performance. *The Academy of Management Journal*, Vol.38, No.3, pp.635-672, 1995.
28. Islam, N., Saha, G. C., Ahmed, F., An Evaluation of job Satisfaction of women employees in commercial banks of Bangladesh. *Journal of Business Administration*, Vol.26, No.3&4, pp. 47-57, 2000.
29. Khan, A. A., Taher, M. A., *Human resource management and industrial relations*. Dhaka: Abir Publications, 2008.

30. Katou, A. A., Budwar, P. S., The effects of human resource management policies on organizational performance in Greek manufacturing firms. *Thunderbird International Business Review*, 49(1), pp.1-35, 2007.
31. Locke, E. A., *The handbook of industrial and organizational psychology*. New York: Wiley, 1976.
32. Mahmood, M. H., *The institutional context of human resource management: Case studies of multinational subsidiaries in Bangladesh*. Unpublished doctoral thesis, University of Manchester, UK, 2004.
33. Malhotra, N.K., *Marketing research: an applied orientation* (3rd ed.). New Delhi, India: Pearson Education Asia, 2002
34. Monappa, A., *Industrial relations*. New Delhi: Tata McGraw-Hill Publishing Company Limited, 2004.
35. Moorhead, G., Griffin, R. W., *Organizational behavior - Managing people and organizations*. Delhi: AITBS Publishers & Distributors, 1999.
36. Moyeen, A. F. M. A., Huq, A., Human resource management practices in business enterprises in Bangladesh. *Journal of Business Studies*, Vol. XXII, No.2, pp. 263-270, 2001.
37. Mullins, L.J., *Management and organizational behavior*. London: Pitman Publishing, 1993.
38. Naipaul, V.S., *A Turn in the South*, London: Penguin, 1989.
39. Noe, R. A., Hollenbeck, J. R., Gerhart, B., Wright, P. M., *Human resource management: Gaining a competitive advantage*. USA: McGraw-Hill, 2007.
40. Ostroff, C., The relationship between satisfaction, attitudes, and performance: An organizational level employees. *Journal of Applied Psychology*, Vol.77, No.6, pp. 963-97, 1992.
41. Petrescu, A. I., Simmons, R., Human resource management practices and workers' job satisfaction. *International Journal of Manpower*, Vol.29, No.7, pp. 651-667, 2008.
42. Robbins, S. P., *Organizational behaviour - Concepts, controversies, applications*. New Delhi: Prentice – Hall of India Private Limited, 1999.
43. Robson, C., *Real world research* (2nd ed.), Oxford: Blackwell, 2002.
44. Robson, C., *Real world research: a resource for social scientists and practitioner-researchers*, Oxford, Blackwell, 1993.
45. Singh, K., Impact of HR practices on perceived firm performance in India. *Asia Pacific Journal of Human Resources*, Vol.42, No.3, pp. 301-317, 2004.
46. Steijn, B., Human resource management and job satisfaction in the Dutch public sector. *Review of Public Personnel Administration*, Vol.24, No.4, pp. 291-303, 2004.
47. Thang, N. N., Buyens, D., *What we know about relationship between training and firm performance: A review of literature*. Paper presented at the 7th International Conference on Ethics and Quality of Work-life for Sustainable Development, Bangkok, Thailand, 2008.
48. Ting, Y., Determinants of job satisfaction of federal government employees, *Public Personnel Management*, Vol.26, No.3, pp. 313-334, 1997.
49. Tzafirir, S. S., A universalistic perspective for explaining the relationship between HRM practices and firm performance at different points in time. *Journal of Managerial Psychology*, Vol. 21, No.2, pp. 109-130, 2006.

50. Weeratunga, L., *Human resource management*. Dhaka: Bangladesh Open University, 2003.
51. Yeganeh, H., Su, Z., An Examination of human resource management practices in Iranian public sector. *Personnel Review*, Vol. 37, No.2, pp. 203-221, 2008
52. Yu, B. B., Egri, C. P., Human resource management practices and affective organizational commitment: A comparison of Chinese employees in a state-owned enterprise and a joint venture. *Asia Pacific Journal of Human Resources*, Vol.43, No.3, pp.332-360, 2005.

The Application of Human Capital to Enhance the Performance of the Creative Industries through Employee Engagement

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Abstract

This research intended to assess the human capital which must be performed by creative industries in Surabaya in connection with employee engagement and performance of the employee. This research was conducted at creative industries in Surabaya which covered 110 employees as respondent. This research by utilizing Structural Equation Modeling (SEM), the technique was processed with AMOS program 6.0 to analyze some hypothesis. The intercorrelations models between these variables in this study revealed that three hypothesis have significant correlation. The result of this research were empirical data of the development of the theoretical of human resources and practice management.

Key words: Human Capital, Employee Engagement dan Kinerja

Introduction

According to Marciano (2010:42) a person engaged workers will be committed to the goal, using all its ability to accomplish the task, keeping his behavior while working, making sure that he has a job well done in accordance with a goal and are willing to take the step of repair or evaluation if necessary. Employee engagement this crisis showed that there is a gap between the reality that goes with the expectations of the company, that employees should be able to maximize its potential, owned by employees and does its job well. Engage internal employees of the company to realize it all, but in fact that is found is most of the employees thus underestimate his work and not work.

Maximize the ability they have. Many employees who do not work in accordance with standard operational companies, employees work at will own, employees do not look at the standard operational companies on each Division of work. This can lead to the results of their work are not able to reach the target and in the standard of the company.

Robinson et al. (2004) define employee engagement as a positive attitude towards employee-owned organization where he works, and values that are owned by the organization. Thus, in the concept of employee engagement, there is a two-way relationship between employees with the company. The problem of employee engagement employee found on creative industry. Nearly all employees at a particular piece at the time still enter working hours take place found to have cool main social media and some are playing games on their phones each. They are a lot more play than do their job, the employee is not concentrated toward their work. There are also found there are some employees who come late even though the incoming work hours that are assigned to the company at 07.30 GMT. Enthusiastic sense of belonging employees is very low against the work. Many were sitting around chatting among each other.

The influence of employee engagement employee behavior against on creative industry. Are public employees at creative industry Source will apply himself accordingly with a task that has been given by a German Manager who had arranged the whole work behavior

employees and existing employees placement place the work on creative industry. Sulistiyani and Rosidah (2009) says that if the employee needs are not met, then the deviant behavior would occur in the absence of such a work, a work strike, protests and other negative behavior.

A Review of the Literature

The basic assumption of the theory of Human Capital is that a person can increase his earnings through increased education.

Each one additional school year means, on the one hand, improve the ability of work and level of income a person, but, in the other party delayed the receipt of income for one year in following school. In addition to the delays in the receipt of income, people who continue the school should pay the costs directly. Then the amount of income that he received all his life calculated in present value or NPV.

So exercise is one of the aspects of the Human Capital, the exercise can be done on the inside and outside of work. Exercises conducted outside the formal; generally work exercises conducted outside of the work are intended to enhance the skills of the employees either horizontally or vertically. Therefore an increase in vertically means deepening the knowledge of a particular field. Exercise in work are also able to help improve work productivity.

Therefore an increase in the quality of human capital cannot be done in a short time, but require a long time. Education on one's self can improve the ability to obtain and use the information and gain an understanding of the economy as well as provide the choice whether a person wants to be ordinary citizens. By langsung education was also influential in the fulfillment of one's personal needs by way of improving the productivity so that it will achieve a better standard of living. A high level of education can increase the capacity of the knowledge innovation in the economy so that it will pop up the new technology, new products and new production processes.

Human capital is the most important asset in a company's assets that are not materialized, owned by the company, and is one of the biggest assets. Human capital is itself defined as human (labor) are educated and trained so needed by a company, because it is they who will be dealing directly with the client.

Human capital is an asset of the individual as an employee of containing knowledge, experience (experience), skills (skills), attitude (attitude), and value (value) that has added value to the organization. Human capital is the core of invalid constructs consisting of Psychological Capital, Intellectual Capital, Emotional Capital, and Social Capital or PIES human capital (Peterson and Spiker in Kadiyono, 2011).

Definition of Human Capital that has been explained earlier can elaborate in detail the components of Human Capital as follows:

1. Knowledge (knowledge), according to Audi, (2002; 214) what we call with knowledge generally arises in the experience, arises from the contemplation (reflection), and evolved through the conclusion (Inference). But is it actually called that knowledge? If that knowledge appears as ways that have been described above, then find out it is believed at least. But just believe just surely not enough. Because the wrong belief is not knowledge. A conviction based on an educated guess lucky (lucky guess) is not knowledge at all, even if that belief is correct.
2. Experience (experience), according to Schmitt (2003:18) experience is about a company that makes its customers be more loyal, maximise the fifth element: an

element of sense; regarding the five senses (such as sight, hearing, and smell) can be done by providing beautiful scenery, delicious aroma, touch of comfort, appropriate music.

3. Skills (skills), according to Singer (2000:62) cited by Amung skill is the degree of success in achieving a goal consistent with effective.
4. Attitude (attitude), according to Azwar (2005:5) that the attitude is a certain regularity in terms of feelings (affection), thought (cognition) and predisposition to action (konasi) a person's response to an aspect of the surroundings around it.
5. The value (value), according to Rokeach in Robbins, (2007:160) the value or the value is defined as the basic reason that "how the implementation or the final State specific preferred personally or socially compared to conduct or circumstances the opposite end.

According to Mayo (2000:115) that measure the performance of the company from a financial perspective it is extremely accurate, but in fact, the basis of the financial value of the mover is human resources (human capital) with all the knowledge, ideas, and innovations. It owns. In addition, human capital is also the core of an enterprise.

According to Mathis (2003:76) that the mention of human capital for the human resources (HR) seems to have not been much embraced by businesses, while the role of Human Resources against future company is very decisive. TBS is capital which can continue to evolve over time and the dynamics of the business environment as well as advances in science. HR advantage compared to other production factors in competition strategies of a company among others: the ability of innovation and entrepreneurship, a unique quality, special skill, different services and productivity capabilities can develop according to needs.

According to Mayo (2000:120) that human resources or human capital has five components, namely individual capability, individual motivation, leadership, the organizational climate, and workgroup effectiveness. Each component has a different role in creating human capital company that will determine the value of a company. Therefore, given the enormous human resources roles in the company, then, the management of the company must be more proactive human resources make him as human capital needs to be given attention and development continuously in accordance with Dynamics the business environment. This research aims to do a review summary, either empirical or theoretical basis of the role of human resources or human capital in improving the company's performance."

Employee engagement

Understanding of Employee engagement

Schaufeli and Bakker, Rothbard (in Saks, 2006:601) defines engagement as yanglebih advanced psychological engagement involves two key components, namely the attention and absorption. Attention refers to the availability of the cognitive and the total time spent by an employee in thinking about and run his role, while Absorption is interpret their roles and refers to the intensity of the focus on the role of an employee in the the organization.

Thomas (2009:38) described the employee engagement with the term worker engagement, which is defined as a level for someone who actively have a self management in running a job. While according to Robbins and Judge (2008:103) employee engagement that is engagement, satisfaction, and individual enthusiasm with the work they do.

While Robinson, et al (2004) define employee engagement as a positive attitude towards employee-owned organization where he works, and values that are owned by the organization. Thus, in the concept of employee engagement, there is a two-way relationship between employees with the company.

Gallup, in his survey of Q12 about employee engagement employee, dividing it into three categories with the following characteristics-its character (Crabtree, 2012):

- a. Employees who are bound (engaged employees), employees work with eager and felt a deep relationship with the Organization, and generally be a part of the birth of innovative ideas that advance the organization.
- b. An employee who is not bound (not-engaged employees): practically their no longer think of the progress of the Organization, such as a person who is sleepwalking, pass the time for work, but do not provide enough energy or passion in her work.
- c. The Employee off (actively disengaged employees): employees are not only not satisfied with their workplace, even openly expressed his discontent at employees in the workplace, as employees take every day or even undermining what produced by fellow co-workers.

Sirota developed a survey to gauge the level of employee engagement employee by looking at two aspects i.e. what it wants employees to the company and its work, as well. As for things that are included in the assessment component of the survey are:

1) Equity (application of Justice)

Employees want to be treated fairly in relation to the basic conditions of work. A satisfactory fair flavor as in dealing with others and personal or social minimum standards. It means benefit received is considered fair or proportionate to the work carried out and sufficient to meet the personal needs of employees. Selaln it, the fair is also to be compared with other employees both in the same company or in the company of others with the same level.

Kourdi (2009:160) outlines that equity can be seen from three aspects namely, physiological, economic, and psychological (as used in SurveyIntelligence Sirota) of a person in relation to the basic conditions of work.

a. Working conditions (physiological aspect)

This aspect is more emphasis to environmental conditions of work experienced by employees. The conditions of the work environment that provides comfort and security will make employees feel needs essentially in the work have been met so that there are indications that the working environment of employees already obtained fairly.

b. Compensation (economic aspects)

This aspect is more emphasis to compensate for what has been done. The application of Justice in this compensation can be seen from a do employees feel that the salary and benefits he got is in compliance with the work he was doing. If salaries and allowances already given appropriate then the application of fairness in economic aspect is already good.

c. fair Feelings (psychological aspects)

This aspect is more stress to the employee's feelings about justice. When employees have felt treated fairly and respectfully in the workplace, then the application of Justice in the psychological aspects of already good.

2) Achievement (recognition)

Employee will enthusiastic in working if her recognition from either company. In this case employees want to gain pride in being able to accomplish important tasks and finish well, receiving recognition for her achievements, and feel proud of what the company can achieve. Kourdi (2009:160) outlines that in measuring achievement, Sirota Survey Intelligence uses several indicators to see if employees get the recognition it deserved. These indicators are a challenge in the job, the opportunity to grow, the ability to finish the job, the feeling of the importance of the work, in recognition of their performance and the feeling of pride in the company.

3) Camaraderie (kinship)

Employees will enthusiastically in the work if he felt the warmth in the relationship of kinship in the environment of work. Warm kinship means interlaced kooperatf relationships with coworkers; the feeling of having community, as well as mutual has between colleagues. Sirota Survey Intelligence measure camaraderie through several aspects of sepeerthubungan with co-workers, cooperation among colleagues in a single work unit, traffic unit kerjasarna work and cooperation with other departments within the company as a whole (Kourdi, 2009:161).

Indicators of Employee engagement

Employee engagement is defined as a positive attitude, full of meaning, and motivation, which is characterized by vigor, dedication, and absorption (Schaufeli et al., 2002). Schaufeli et al. (2002, p. 74). 3 aspects of employee engagement:

1. Characterized by the presence of Vigor Vigor high energy levels, the desire to strive in earnest, and not easy to give up.
2. Dedication. Dedication is characterized by a feeling of being full of meaning, enthusiastic, proud, inspiring, and challenging in the job. Employees perceive the work as a valuable experience, inspiring and challenging.
3. Measurement unit. Absorption is characterized by the existence of a concentration and deep interest. The employee was pleased his attention taken by work, drowning in work and have difficulties to separate themselves with jobs.

Factors that affect Employee Engagement

Factors that affect employee engagement: Work Environment (work environment), Leadership (leadership), Team and co-worker (colleagues), Training and Career Development (training and career development), Compensation, Organizational Policies, procedures, structures and systems, Workplace well-being (welfare work). According to Thomas (2009:47-50) engagementdapatempat intrinsic influenced by rewards, namely: Meaningfulness (A Sense of Meaningfulness), options (A Sense of Choice), ability (A Sense of Competence), and progress (A Sense of Progress).

The benefits of Employee engagement

The benefits of employee engagement revealed by Siddhanta and Roy (2010:171) stating that employee engagement can create success for the company through things that are related to the performance of employees, productivity, safety , attendance and retention, customer satisfaction, customer loyalty, and profitability. Employee performance to be one of the things that becomes a result of the creation of employee engagement is high. It is also expressed by Robinson et al. (cited by little, 2006:113) to the effect that an employee who has a strong relationship with the company will increase the performance in his work to the advantage of companies (Ramadan and Sembiring, 2014).

The performance of the work achievement is the result of how effort, ability, and the perception of the task of Byars and Leslie, (1984:311). From this limit it is clear that the intended accomplishments work is the results achieved by the person according to the measure that applies to the work in question, As'ad (1995:48). The achievements of this working is the catalyst for improving the performance of an organization, for the performance of a group of organizations from accomplishments provided by all parts related to business activities. Work achievement is one measure of the actual behaviour in the workplace that is one-dimensional, where the dimensions of the work achievement include: 1. The quality of output, 2. The quantity of output, 3. Working time, and 4. Collaboration with colleagues, and responsibility, Johnson (1991:19).

1. The quality of output

Good for the company, which is engaged in manufacturing as well as services, the provision of quality products, is an assertion so that the company can survive in various forms of competition. The increasing purchasing power and support consumers to the existence of the quality of products offered will further improve the sustainability of the companies in the demanding goals set.

2. The quantity of output

Mastery of the market is one of the marketing strategy should be a major consideration for the company, for that quantity of output will determine the company's ability to master the market by offering as much as possible the products that are able to generated. With the quantity of product that can be generated, the company is expected to give a positive impression toward the position of the product in the market.

3. Working time

The company's ability to establish work time which is considered the most efficient and effective at all levels in management. Working time is the basis for an employee to complete a product or service that became its responsibility.

Teamwork (Relationships) is basically the same work is long-term bonds for all components of the company in performing a wide range of business activities. Cooperation is the requirement for the success of the company in achieving the goals set for the existence of a good cooperation will give the trust on a wide range of interested parties, either directly or indirectly with the company. To realize the existence of the good cooperation of the company should be able to build a constructive internal condition with followed the commitment and consistency is high for all levels of management.

Research Methods

In this research analysis using SEM (structural equation modelling). According to Ferdidand (2002:6), structural equation Models, structural equation modelling (SEM) is a set of techniques that allow a statistikal testing a series of relationships that are relatively "complicated" simultaneously. The complicated relationships that can be established between one and more of the dependent variable with one or more independent variables. Sampling techniques using proportional random sampling with a sample number of 110 people.

Modeling Steps of SEM

Ferdinand (2002:33), SEM can do modeling steps are as follows: 1). The development of a theoretical model, 2). diagram of the path of Development, 3). diagram of the path of Conversion into the equation, 4). The selection of the input matrix and estimation models,

5). Assessing the problem identification, 6). The evaluation Model, 7). Interpretation and modification of the model.

The Analysis and Discussion

In this section, expressed about the outcome of the analysis based on print out SEM. In the analysis of SEM, there are two main components of the analysis model of measurement (measurement model) and the structural model (structural models). Model measurement (measurement model) concerns the analysis whether the indicators really are valid and reliability measure invalid constructs (unobserved variable), while structural model (structural models) concerning the analysis of the influence of a invalid constructs against other invalid constructs.

Both of these models are related. This means that the model must be valid and measurement reliability can proceed with structural equation analysis. Because if the measurement model is invalid then the structural model is not good because the indicators that are used are not capable of measuring the invalid constructs which should be as measured.

Analysis and study results

Results of Testing the Assumptions of SEM

There is some assumption that testing is done in SEM, namely data normality test and linieritas.

Table 1: THE ASSUMPTIONS OF SEM

HUBUNGAN	ESTIMA SI	P	ALPH A	LABEL
Employee Engagement	<-- Human Capital	0.088	0.453 0.05	nonsignifikan
Performance	<-- Employee Engagement	0.043	0.669 0.05	nonsignifikan
Performance	<-- Human Capital	0.001	0.989 0.05	nonsignifikan
Y1.1	<-- Employee Engagement	1.000	0.000 0.05	Signifikan
Y1.2	<-- Employee Engagement	0.975	0.000 0.05	Signifikan
Y1.3	<-- Employee Engagement	1.041	0.000 0.05	Signifikan
X1.5	<-- Human Capital	1.000	0.000 0.05	Signifikan
X1.2	<-- Human Capital	0.907	0.000 0.05	Signifikan
X1.1	<-- Human Capital	1.040	0.000 0.05	Signifikan
Y2.3	<-- Performanc e	1.589	0.000 0.05	Signifikan
Y2.2	<-- Performanc e	1.646	0.000 0.05	Signifikan
Y2.1	<-- Performanc e	1.000	0.000 0.05	Signifikan

Table 2: RESULTS OF TESTING THE ASSUMPTIONS LINIERITAS

VariabelBebas	VariabelTerikat	HasilPengujian ($\alpha = 0,05$)	Keputusan
Human Capital	Employee Engagement	Model linier nonsignifikan	Linier
Employee Engagement	Performance	Model linier nonsignifikan	Linier
Human Capital	Performance	Model linier nonsignifikan	Linier

The Results of Hypothesis Testing

Hypothesis testing is done with test *t* (*t* test) on each line partially direct influence. A complete analysis of the results is contained in the results of the analysis of SEM.

Hypothesis 1: The Human Capital effect nonsignificantly to the Employee Engagement. The SEM analysis results variable Human Capital to the Employee Engagement were obtained and the p-value 0.453. Then there is enough empirical evidence to avoid the hypothesis that the human capital effect nonsignificantly to employee engagement. Given the marked path coefficient is positive, meaning the relationship both this variable is positive, it means the better the human capital then the higher the employee engagement employees.

Hypothesis 2: The human capitaleffect nonsignificantly to the performance. The SEM analysis results variable human capitalto the performance were obtained and the p-value 0.669. Then there is enough empirical evidence to avoid the hypothesis that the human capitaleffect nonsignificantly to performance. Given the marked path coefficient is positive, meaning the relationship both this variable is positive, it means the better the performance, then the higher the performance of employees.

Hypothesis 3: The employee engagement nonsignificant effect on performance. The SEM analysis results variable employee engagementto the performance, path coefficient were obtained and the p-value of 0.989. Then there is enough empirical evidence to avoid the hypothesis that employee engagementsignificant effect on performance. Given the marked path coefficient is positive, meaning the relationship both these variables are positive, meaning that the higher the employee engagement the higher the performance of employees.

Summary and Advice

Summary

1. Human capital effect not significant toward employee engagement employees of the creative industry in Surabaya.
2. Human capital effect not significant creative industry employees against performances in Surabaya.
3. Employee Engagement effect not significant creative industry employees against performances in Surabaya.

Advice

1. The need to enhance human capital and employee engagement that impact positively on the performance of creative industry. This indeed is difficult because it deals with the mental attitude.
2. Human capital in the field of creative industries still needs refinement and development in order to face globalization.

Daftar Pustaka

- Aprilian, Fransiscus, dkk. 2013. Hubungan employee engagement dengan perilaku produktif karyawan, jurnal psikologi industri dan organisasi. Vol 2 No.1, April 2013, fakultas psikologi universitas airlangga Surabaya.
- Priyatno, Duwi. 2016. *Belajar Alat Analisis Dan Cara Pengolahannya Dengan SPSS Praktis Dan Mudah Untuk Dipahami Untuk Tingkat Pemula Dan Menengah*. Yogyakarta: Pustaka Pelajar.
- Ramdhani Nabilah Dan Jafar Sembing, Pengaruh Employee Engagement Terhadap Kinerja Karyawan Human Capital Center PT. Telekomunikasi Indonesia, Vol. 14 – No. 1, April 2014, Universitas Telkom.
- Sugiyono, 2008. *Metode Penelitian Kuantitatif dan Kualitatif dan R&D*, Alfabeta, Bandung.
- Suprihanto, Jhon, dkk. 2003. *Perilaku Organisasi*. Edisi 1. Jilid 1. Yogyakarta: STE YKPN. Aditya Medika.
- Veonika, Sri mulyani dkk. Dampak Integrative Leadership Dan Employee Engagement Terhadap Perilaku Extra-Role, Jurnal Manajemen Teknologi. Vol.15 No. 1 2016, Universitas Katolik Widya Mandala Madiun.
- Wahyu, Agnes, dan Roy Setiawan. 2017. Pengaruh Employee Engagement Terhadap Kinerja Karyawan Pada PT. Tirta Rejeki Dewata, AGORA. Vol. 5 No. 1, Universitas Kristen Petra.
- Arends, Richard I. (2008) . *Learning to Teach Belajar untuk Mengajar*. (Edisi Ketujuh/Buku Dua). Terjemahan Helly Pajitno Soetjipto & Sri Mulyantini Soetjipto. Yogyakarta: Pustaka Pelajar Readmore.
- Azwar, Saifuddin. 2005. Sikap Manusia Teori dan Pengukurannya. Yogyakarta: Pustaka Pelajar.
- Hasibuan, Malayu S. P. 2005. *Manajemen Sumber Daya Manusia*. Edisi Revisi. Jakarta: Bumi Aksara.
- Hariandja, Marihot Tua Efendi. 2002. *Manajemen Sumber Daya Manusia: Pengadaan, Pengembangan, Pengkompensasian* hal:57.
- Hermawan, Asep. 2005. *Penelitian Bisnis Pradigma Kuantitatif*. PT. Grasindo: Jakarta
- Mangkunegara, Anwar Prabu. 2013. *Manajemen Sumber Daya Manusia*. Bandung: PT. Remaja Rosdakarya.
- Mayo, A. 2000. "The Role of Employee Development in The Growth of Intellectual Capital" dalam Personal Review, Vol. 29, No. 4.
- Mulyadi, 2015. *Manajemen Sumber Daya Manusia (MSDM)*. Bogor: In Media.
- Rokeach dikutip dari Robbins dan Judge. 2007. *Perilaku Organisasi*. Jakarta : Salemba Empat, pp. 146 – 160
- Robbin, P. Stephen. 2003. *Perilaku Organisasi, Alih Bahasa, Tim Indeks*. Gramedia: Jakarta.

Promotional strategy: To Enhance Punjab as a Tourism Destination

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Abstract

Purpose

The aim of this paper is to promote Punjab as a tourism destination through special technique, by assess the adequacy of promotional strategies. In order to establish proper promotional strategy research assesses the adequacy of promotional strategies in order to attract foreign tourist inflow. Promotion to upgrade as tourism goal requires a procedure. It isn't difficult to promote tourism goal as brands simply need to indentify key issues amid destination marketing (Baldemoro2013). Limited time methodologies are subsequently especially noteworthy since it enhance revenue as well as encourages the destination to draw in new clients while holding the current ones. One can utilize an assortment of limited time procedures however before that the destination must comprehend the genuine idea of their product/service and after that distinguish the most suitable strategy. The result of this examination demonstrates that suitable exceptional technique assume imperative job in destination marketing through promotion.

Key word: Promotion, Tourism, Strategy, destination marketing

I. Introduction

The marketing idea is frequently utilized improperly, diminishing it to the promotion and offer of product and visitor goals, specifically to promoting Punjab as tourism destination. Promotion is a type of correspondence with the objective clients. Or maybe it tends to be considered as a type of convincing correspondence went for changing the purchasing conduct of the clients. A privilege special technique will be useful to the Punjab in influencing the clients to comprehend the way that it has the correct product or service for prospect clients. Advertising tourism goals is a testing movement in light of the fact that different partners e.g. indigenous individuals, organizations and financial specialists, visitors, visit administrators and mediators, and intrigue bunches are engaged with the improvement and generation of tourism products. However, an initial move towards choosing the promotional strategy, the Punjab state must settle on the correspondence objectives (Zeithaml and Bitner, 2000).

II. Research aim and Theoretical background

In marketing, headway implies a promoting correspondence used to instruct or impact target gatherings of spectators of the relative advantages of Product, service, or brand. The purpose of progression is to extend care, make interest, deliver arrangements or make brand unwavering quality. Promotion in tourism draws the consideration of the potential clients, change the conduct of the current purchasers and impact them to visit a destination (Mill and Morrison 2009). A tourism promotional plan speaks to a methodology and is a

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blend of strategies, tools and assets intended to accomplish certain revenue and social targets. It is one of the basic parts of the market mix, which fuses the four P's: price, product, promotion, and place. The fifth P: people, sixth process and seventh physical evidence. Advertisement is expected to illuminate individuals about the destination's product or service. Advertisement could be performed through media, for example, TV, daily papers, magazines, boards, radio and so on.

Personal selling is the oral correspondence with potential purchasers. The individual offering may center to build up an association with the potential purchaser. Deals promotion gives motivations to clients or to the circulation channel that assistance to develop interest for product. The majority of the above ways have their favorable circumstances and their weaknesses too. Rowley, 1998; Clow and Baack, 2003 stated the promotional mix includes Advertising; Direct marketing; Sales promotion; Public relations and publicity; Personal Selling and Sponsorship. As per Petit et al. (1985, p.41) "the promotional blend is the mix of individual offering, advertisement, and deals advancement used to accomplish promoting targets. The goal and-undertaking strategy is utilized by and by to build up a solitary advancement blend plan. This is viable yet has downsides: (1) just a single promotion system and blend is considered, and (2) basic leadership is removed from the hands of senior marketing management.

2.1 Promotion mix strategies: According to Armstrong & Kotler (2005, p. 405) "a push strategy involves 'pushing' the product through distribution channels to final consumers. The producer directs its marketing activities (primarily personal selling and trade promotion) towards channel members to induce them to carry the product and to promote it to final consumers. Using a pull strategy, the producer directs its marketing activities (primarily advertising and consumer promotion) towards final consumers to induce them to buy the product. If the pull strategy is effective, consumers will then demand the product from channel members, who will in turn demand it from producers. Thus, under a pull strategy, consumers demand 'pull' the product through the channels." This paper puts forward a basic leadership process by which elective promotional methodologies and blends are produced to pick the one that is generally encouraging." if there should be an occurrence of tourism advertising distinctive methodologies can be placed by and by to advance Punjab as a tourist destination.

III. Research Methodology

All things considered the term 'research' is the investigations of practical exercises that produces new technique, or build up the model and discoveries the issue from the existing information (Kothari 2004). The researcher has used survey method along with descriptive and exploratory method in this paper. The primary data collected through questionnaire from the foreign tourists and Tourist officers and tourist guides of Punjab. Total 600 tourists, 14 tourist officers on different locations and 20 tourist guides participated in this research. The secondary data collected from books, journals and web based resource.

3.1 Limitation

There are a few limitation of this investigation. Since these outcomes depend on advantageous of convenient sample who remained in chosen inns and resorts.

Data were gathered amid high and celebration season and the respondents were at that point in Punjab state, so the outcomes may contrast contrasted with those respondents that visit Punjab in other low season.

IV. Findings

Statistical Package for Social Sciences (SPSS) version 22 software was used to analyze data collected from the foreign tourists' questionnaire. Since the sample differ significantly with regards to the numbers of tourists, tourist guides and tourist officers interviewed. The comparative analysis could not be done. However the researcher has tried to rank the perception and consider first five factors contributing to: The opinion of tourist, tourist guides and tourist officers about promotion.

The comparison of opinion of tourist, tourist guides and tourist officers on the promotional measure is as follow:-

S. No	The Promotional opinion of tourist	Tourist (n-600)	Rank	Tourist Guide (n-20)	Rank	Tourists Officers (n-14)	Rank
1	Travel brochure	62 (10.3)		5(25.0)		2(14.3)	
2	Tour operators	80(13.3)		13(65.0)	2	3(21.4)	
3	Tourism promotions of Punjab Govt.	154(25.7)	4	14(70.0)	1	6(42.9)	3
4	Internet	248(41.5)	2	12(60.0)	3	6(42.9)	3
5	Television	93(15.5)		13(65.0)	2	4(28.6)	5
6	Magazines	27(4.5)		11(55.0)	4	1(7.1)	
7	Travel guide books	52(8.7)		2(12.5)		5(35.7)	4
8	Relative & Friends (Word of Mouth)	304(50.7)	1	5(25.0)		8(57.1)	1
9	Books	48(8.0)		6(30.0)	5	7(50.0)	2
10	Education	129(21.5)	5	3(15.0)		7(50.0)	2
11	World travel fair	167(27.8)	3	11(55.0)		6(42.9)	3

In the Following table first 5 rank wise opinions of tourist, tourist guides and tourist officers:-

Rank	Tourists opinion	Tourist Guides	Tourist Officer
1.	Relative & Friends (Word of Mouth)	Tourism promotions of Punjab Govt.	Relative & Friends (Word of Mouth)
2.	Internet	Television, Tour operators	Books, Education
3.	World travel fair	Internet	Tourism promotions of Punjab Govt., Internet, world travel fair
4.	Tourism promotions of Punjab Govt.	Magazines	Travel guide books
5.	Education	Books	Television

The Pearson Chi-Square Test applied to above question and result is as following:-

Pearson Chi-Square Tests		
	Gender - M-1, F-2	
	Chi-square	Sig.
Travel brochure 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	14.567	.006*
Tour Operators 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all.	7.569	.109
Tourism promotions of Punjab Govt. 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	2.979	.561 ^{b,c}
Internet 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	3.582	.310 ^{b,c}
Television 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	3.422	.490
Magazines 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	136.575	.000*
Travel guide books 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	5.250	.263 ^{b,c}
Relative & Friends (Word of Mouth) 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	15.297	.002*
Books 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	106.631	.000*
Education 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	34.830	.000* ^b
World travel fair 1-V.imp, 2-Imp, 3-Average, 4- NI, 5-Not Imp at all	2.467	.651

The comparison of tourist, tourist guides and tourist officers regarding media for communication

S. No.	Media	Tourist (n-600)	Rank	Tourist Guide (n-20)	Rank	Tourists Officers (n-14)	Rank
1.	TV	22(3.7)	4	9(45.0)	2	4(28.6)	3
2.	News paper	98(16.3)	2	5(25.0)	4	2(14.3)	4
3.	Magazines	72(12.0)	3	7(35.0)	3	5(35.7)	2
4.	Internet	412(68.7)	1	18(90.0)	1	14(100.0)	1

The following table shows Rank wise recommended media for communication by tourist, tourist guides and tourist officers

Rank	Tourists Perception	Tourist Guides	Tourist Officer
1.	Internet	Internet	Internet
2.	News paper	TV	Magazines
3.	Magazines	Magazines	TV
4.	TV	News paper	News paper

The Pearson Chi-Square Test applied to above question and result is as following:-

Pearson Chi-Square Tests					
		TV 1-Excellent,2- Very Good,3- Good,4- Average,5-Poor	News paper 1-Excellent,2- Very Good,3- Good,4- Average,5- Poor	Magazines 1-Excellent,2- Very Good,3- Good,4- Average,5-Poor	Internet 1-Excellent,2- Very Good,3- Good,4- Average,5-Poor
Gender - M-1, F-2	Chi-square	8.669	187.472	185.855	12.238
	df	4	4	4	2
	Sig.	.070 ^a	.000 ^{a,*c}	.000 ^{a,*c}	.002 [*]

While asked to the foreign tourist about the preference of TV channel, then 20 percent answered that sports and educational channel and same percentage was movie and entertainment channel. Then 16 percent said news and entertainment channels are their preference. Furthermore 15 percent responded to movie and entertainment channel. Movie and educational channel was 11 percent and 7 percent was education and entertainment channels that effect tourist choice to watch. An overview on promotion management presumes that tourist gives first inclination while setting promotional mix then to relative & friends (Word of Mouth). Besides foreign tourist search internet to visit prospect destination, the world travel fair is ranked on number three. On fourth stage tourist plan visit by getting consideration of government promotions and education went on fifth rank according foreign tourist point of view. On the other hand tourist guide responded and gives their opinion that, tourism promotions of Punjab Govt. is ranked on number one, Television and Tour operators ranked on second position from which tourist like to attract. Internet is also good method communication and rank on third and magazines on fourth. Finally education gets fifth position. The third participants of this survey were tourist officer who deploy in different locations. According them relative & friends (Word of Mouth) ranked first, Books & Education on second rank, tourism promotions of Punjab Government, Internet, world travel fair ranked third position, Travel guide & books on fourth rank and finally fifth ranked obtained by television. While asked recommendation of all respondents then internet was their first inclination, in case of foreigner news paper ranked second, magazines on third position for tourist and tour guides and TV on fourth position. The tourist guide suggested TV on second rank and news paper on fourth rank for tourist officers as well. Tourist officers ranked magazines on second position and TV on third rank.

V. Discussion & suggestion

The results showed Relative & Friends (Word of Mouth) has a very important role in promotion of tourism destination which is consistent with suggestions of Dolnicar (2008) and Kotler, Bowen and Makens (2003). On the other hand advertisement through internet makes it possible to send the desired messages to buyers without the risk of undesired results by using pull strategy. It is true that nowadays customers have more control on their decision making process when it comes to the internet. (El Ansary, Frost & Strauss 2006, 315-317.) World travel fair are a frequently need to used which also suggested by this

paper. Through world travel fair Punjab can promote its brand by putting name of destination in front of target audience. The conclusion is that these three communication techniques have an excellent synergistic effect and successfully complement each other. While one is talking about destination marketing through advertisement then tourism promotions by state Government is required to use television advertisement to promote destination to attract prospect tourist. Education about different destination either by print media or through tourist guide is essential. Although there are different preference of tourist, tourist guide and tourist officers for advertisement when promoting a destination, but the plain fact is that word of mouth should use on large extent. In the author's opinion, there is great potential for the further development and improvement of the promotion of tourist destinations. Further the use of Social media is suggested by researcher. Social media crusade expands the perceivability which can prompt win more benefits. To raise the awareness for social media campaign the state should include social media logos and links to their further advertisement.

VI. Conclusion

Nobody will visit Punjab except if potential clients have not known about, nor will visit in the event that they don't realize what Punjab offers to them. This is the reason an extraordinary promotion strategy is essential if needs to promote Punjab as tourism destination. Numerous tourism destinations utilize in excess of one technique, while some others may utilize diverse strategies for various marketing purposes. The restricted time frameworks will position Punjab in an incredible light and gateway will open for future development. Nevertheless, the most basic activity in promotion is played by advertising, as one-way communication, and informal, as two-way communication between a destination and potential guests. Tourism promotion can be more fruitful through word of mouth marketing. Verbal (WOM) communication is a noteworthy bit of online relationship inside the online traveler networks. Particularly, tourism experts are possessed with WOM communication because of its prominence, development and effect on that community.

References

Baldemoro, J., (2013) Tourism Promotion. Slideshare, Available: <http://www.slideshare.net/JHBlue/tourism-promotion-28432196>.

Clow, E., K., Baack, D. (2003), Integrated Advertising, Promotion, and Marketing Communications, 2nd Edition, New York: Prentice Hall.

Dolnicar, S., (2008) Market Segmentation in Tourism, in A.G. Woodside, and D. Martin (Eds.), Tourism Management: Analysis, Behaviour and Strategy (pp.129-150). Cambridge: CAB International.

Eagle, L., (2003) Review of Clow, K., E., and Baack, D., (2002) Integrated Advertising, Promotion and Marketing Communications, New Jersey: Pearson Education/ Prentice Hall, Journal of Marketing Communications, 9 (3), pp. 193-194. ISSN 1352-7266

El-Ansary, A., Frost, R., & Strauss, J., 2006, E-Marketing (4th ed.). London: Pearson Education.

Madasu, P. 2013. Social media marketing and promotion of tourism, Vol. IX. Available: <http://www.smsvaranasi.com/insight/Social%20media%20Marketing%20and%20Promotion%20of%20tourism.pdf>.

Kotler, P., Bowen. J., & Makens, J., (2003) Marketing for Hospitality & Tourism. New Jersey (US): Prentice Hall

Armstrong G., Kotler P., (2005), Marketing an Introduction, (Page405, 459), Prentice Hall

Kotler, P. & Armstrong, G. (2010) *Principals of marketing* (13th edition), Pearson Education Inc. Upper Saddle River, New Jersey.

Kothari, C. R. 2004. *Research methodology: Methods & techniques* (2nd edition). India: New Age International (P) Ltd

Mill, R., C., & Morrison, A., M., (2009), *The Tourism System* (6th edition), Kendall Hunt Publishing, USA.

Mehta, V., 2012 *Meaning, Definition and Element of Promotion Mix*. Publish Your Articles. Available: <http://www.publishyourarticles.net/knowledge-hub/business-studies/promotion-mix.html>.

Petit Thomas A., McEnally Martha R., (1985), *Journal of Consumer Marketing* .Volume 2 Issue 1 page 41-47 MCB UP Ltd

Rowley Jennifer (1998), *Promotion and Marketing Communications in the Information Marketplace*, Volume: 47 Issue: 8 Page: 383 – 387.

Sautter, E.T. & Leisen, B. (1999). *Managing stakeholders a Tourism Planning Model*. *Annals of Tourism Research*, 26(2): 312-328

Zeithaml, V.A. and Bitner, M.J. (2000) *Services Marketing Integrating Customer Focus across the Firm*. 2nd Edition, McGraw-Hill, Boston

Study of Product Mix Strategies of Indian Mnc's In Fmcc Sector With Special Refrence To Patanjali Ayurveda Limited AND DABUR INDIA LIMITED

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Abstract

India is one of the biggest developing business sector with an aggregate populace over one billion. After post-progression the neck cut competition of Multi National Corporations indicating extraordinary rivalry among organizations and their products. FMCG product touches every aspects of human life. These products are frequently consumed by all sections of the society and a considerable portion of their income is spent on these goods. Apart from this, the sector is one of the important contributors of the Indian economy. This sector has shown an extraordinary growth over past few years, in fact it has registered growth during recession period also. The future for FMCG sector is very promising due to its inherent capacity and favorable changes in the environment. They are accompanying new items to pull in clients. In such a ferocious rivalry period organizations are accompanying separated and imaginative items to pick up piece of the overall industry. Multinational enterprises (MNEs) are increasing their presence in the lives of more and more consumers as companies seek to expand and promote their products to a still wider range of markets globally. As markets change and develop, so does the strategy used to enter them, and companies must be able to choose the correct way to enter markets in order to remain competitive. This research paper exposes the attitudinal effects of Product-Mix of FMCG products in a mass market confined to two major giants Patanjali Ayurveda Ltd. Dabur India Ltd. Companies. This article introduces the existing and desired product mix strategies in FMCG categories bridging the gap between companies and the customers. The article starts with the problem statement followed by significance, objectives, scope, methodology, limitations of the study, summary of findings and suggestions and recommendations.

Keywords:- MNC's, FMCG, Patanjali Ayurveda Ltd., Dabur India Ltd., Strategies, product-mix etc.

Objectives

The research aims at identifying salient features of the Product Mix Strategies adopted by two FMCG companies i.e. Dabur India Ltd. And Patanjali Ayurveda Ltd. in respect of their product Mix. The following are some of the specific objectives of the study.

1. To assess the product mix strategy used in consumer market.
2. To evaluate the Product mix strategy of DABUR and PATANJALI in Market.
3. To determine the customer perception and opinion on product lines offered by the selected companies.
4. To assess the existing and desired product mix in FMCG categories in India.
5. To evolve new possible opportunities for FMCG in Indian market.

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Significance of the Study

Though, the wide range of Household and Personal Care Products being marketed by the companies, consumers belonging to different segments are not effectively delivered with the right products in right price. The study, so far conducted on product mix strategies are not adequately focusing on bridging the gap between marketer and the prospects. Therefore, current study is designed to address those issues, which are very essential in designing customer oriented marketing mix strategy. This study helps in informing and generates assistance in developing effective product mix in household, wellness and personal products. Since, product mix decision is critical decision, it involves huge investment, efforts, and right information saves companies from the disaster.

Introduction

Fast Moving Consumer Goods (FMCG), also known as Consumer Packaged Goods (CPG), is products that have a quick turnover, and relatively low cost. Consumers generally put less thought into the purchase of FMCG than other products. The absolute profit made on a FMCG product is less; however they are generally sold in high numbers. Hence, profit in FMCG goods generally scales with the number of goods sold, rather than the profit made per item. The classification generally includes a wide range of frequently purchased consumer products including: toiletries, soaps, cosmetics, teeth cleaning products, shaving products, detergents and other non-durables such as glassware, bulbs, batteries, paper products and plastic goods. The category may include pharmaceuticals, consumer electronics and packaged food products and drinks, though often categorized separately.

The FMCG sector includes companies like Indian Tobacco Corporation (ITC), Godrej, Hindustan Lever Limited (HLL), Gujarat Cooperative Milk Marketing Federation (GCMMF-Amul) and Dabur India Limited. Some FMCGs products like toothpaste, hair oil and others like shampoos have done much better in the rural areas than the urban and the semi urban areas. Due to the strong presence of MNCs many brands are available in different categories of FMCGs in rural segment like in hair oil category Parachute, Nihar, Shanti amla, Almond, etc. brands available, in tea brands available are Maharaja, Sargam, Redlabel, Brookbond etc., in fairness cream brands available are Boroplus, Fair & Lovely, Vicco, Fair & Handsome, Garnier, etc., in soap brands are Santoor, Dettol, Medimix, Liril2000, Hamam, Lifebuy, Cinthol, Dove, etc., in shampoo brands are Clinic plus, Vatica, Chick, Head & shoulders, etc., in biscuits category brands are Parle-G, Britannia, SunfeastMonacco, Tiger, etc. available to lure more rural consumers.

The Indian FMCG sector is the fourth largest sector in the economy with a total market size in excess of US\$ 13.1 billion. It has a strong MNC presence and is characterized by a well established distribution network, intense competition between the organized and unorganized segments and low operational cost. Availability of key raw materials, cheaper labour costs and presence across the entire value chain, gives India a competitive advantage. Penetration level as well as per capita consumption in most product categories like jams, toothpaste, skin care, hair wash, etc. in India is low, indicating the untapped market potential. Burgeoning Indian population, particularly the middle class and the rural segments, presents an opportunity to makers of branded products to convert consumers to branded products.

FMCG giant Dabur has waged war against its rival, Baba Ramdev's Patanjali Ayurved. Newly emerging firm, Patanjali had sounded the bugle with a commercial, In December 2016, which claimed it's 'honey' brand much safer and cheaper than other branded honey products in the market. Patanjali's television advertisement displays a bottle of honey, similar to the looks of Dabur's bottle, and goes on to claim that the price of Patanjali's product is much cheaper than other brands, "It's just Rs 70 and not Rs 122 (which is the price of Dabur's product for 250 gram pack)," ad claimed.

So it is Dabur's turn now. In Next month, Dabur launched a counter ad claiming its honey to be Food Safety and Standards Authority of India (FSSAI) approved -- which means the product is tested and licensed by food regulator and hence is much safer. It also claims that safety and not the price tag should determine a consumer's choice of brands. Dabur's ad plays on the fact that Patanjali's honey is not FSSAI approved and hence its quality is questionable.

Recently, the industry body for edible oil, Solvent Extractors Association (SEA) of India had filed complaints with FSSAI and advertising industry watchdog ASCI against Patanjali Ayurved for alleged misleading ads for mustard oil and sought action against the yoga guru promoted firm. SEA complained that the company's recent advertisement for 'Kacchi Ghani Mustard Oil' was not in good taste and intends to create panic against solvent extracted oils and refined oils.

For the past two decades, every time the management of Dabur India Ltd met to finalize a new product, it ended up also debating whether to stick to Ayurveda or to focus on non-Ayurvedic products.

The decision to launch non-Ayurvedic products came 113 years after S.K. Burman set up Dabur in 1884 in Kolkata. In 1997, the home-grown Ayurvedic products maker launched Project STARS (Strive to Achieve Record Successes) to accelerate growth through diversification. It launched real, a fruit-based beverage. Ayurveda cannot take Dabur far, the Burmans were convinced. So, the family that popularized Ayurveda in India moved away from its core strength. Over the next 19 years, the company's focus intensified so much on non-Ayurveda products that just the food business accounted for about 11% of its Rs8,436 crore revenue in the year to March 2016 and 18% of domestic sales came from foods. Not just food, it launched a number of non-Ayurvedic products in segments like personal care and home care as well. Overall, about 40% of its sales came from non-Ayurvedic products in the year to March 2016. The wheel of change was set for a spin.

But then came yoga-guru-turned-businessman Baba Ramdev. Under his company Patanjali Ayurveda Ltd, he launched a range of fast-moving consumer goods (FMCG) based on Ayurveda. In recent months, ever since Patanjali started aggressive advertising on television, it has challenged companies such as Hindustan Unilever Ltd (HUL), Colgate-Palmolive (India) Ltd, Nestlé India Ltd that compete in India's Rs3.2 trillion-a-year consumer packaged goods market.

There's more. Going by Ramdev's projections, Patanjali will cross Rs10,000 crore in revenue in fiscal year 2017—from Rs5,000 crore in FY16. This is more than what brokerage firm Morgan Stanley India Co. Pvt Ltd projected as Dabur India's revenue in FY17—Rs 9,630 crore.

Scope of the Study

The scope of the study deals with the area that has been considered in the research. The area considered in the research is product mix strategies of DABUR and PATANJALI, in

Global Market. Consumer opinion on the product mix strategy of the above companies is collected with the aid of designed various papers, companies websites, news articles and structured questionnaires for Dealers. The sample respondents are selected from the various segments in Lucknow city only. The collected data is analyzed to meet the research objectives.

Data Analysis Techniques

Statistical tools like tests, cluster analysis etc., and other methods of presentation like diagrams, charts, and graphs have been used to draw a precise conclusion.

Sources of Data

a) Primary Data

Convenient Sample survey through questionnaire has been administered to the target respondents at various locations in Lucknow city for comparative study of consumer behaviour and perception.

b) Secondary Data

Gathered information from the association of FMCG Industries consumer protection organizations, FICCI, IBEF and industry archives. Other required information has been collected from published journals, books, and concerned research reports, annual reports from company website, seminar papers, business magazines, and internet.

Limitations of the Study

The study is mainly based on survey method of research. Therefore, the limitations of survey method are expected to influence the outcome of the research. Product mix is an area of competitive advantage; Dealers and people contacted were either not well know the related information or hesitant to reveal the information on product mix strategies they follow. So the information collected by company website is assumed to be factual and its validity is not questioned.

Products and Their Competencies of Selected Companies

Patanjali Ayurvedic Limited is one of the fastest growing Indian FMCG companies which were established in 2006 by Baba Ramdev along with Acharya Balkrishna. Its manufacturing unit and headquarters are located in industrial area of Haridwar and the registered office is located in Delhi.

According to India infoline finance Ltd. IIFL, Acharya Balkrishna accounts for 94% of the share and the remaining stake are owned by Sarwan and Sunita Poddar, an NRI couple. However, Baba Ramdev does not own any stakes but plays an important role in the brand gaining visibility by marketing Patanjali's product in his yoga camps.

Some of the main products of Patanjali are Patanjali Moisturizer Cream, Patanjali Multani Mitti Face Pack, Patanjali Aloe Vera Juice, Patanjali Yoga Sutra, Patanjali Coconut Hair Wash, Patanjali Sheetal oil, Patanjali Sunscreen, Patanjali Aloe Vera apricot Face Scrub, Patanjali Anti-wrinkle Cream, and Patanjali Drishti Eye drop.

Patanjali is leading over its competitors due to following reasons-

- **Innovation** – Patanjali being a major competitor, FMCG companies are expected to introduce innovative Herbal and Ayurvedic products over the forecast period.

- **Pricing** – Patanjali sells its product at a lower price to meet consumer demands. Patanjali is able to sell its best quality product at a price which is 10% to 30% less than its competitors who spend 12% to 18% on advertising and promotion.

•**Brand Marketing** – Patanjali has given a tough competition to some of the FMCG majors in the area of hair care, oral care and OTC products across its brand portfolio through impressive brand marketing by Baba Ramdev.

•**Revenue Market Share** – According to IIFL, Patanjali could attain a net turnover of Rs 20,000 crore by FY20.

New launches of Patanjali include Patanjali Noodles, DantKanti Advance, and Sugar-free Chyawanprash, Power Vita, Seabuckthorn dietary supplement and powdered hair dye. Other than the products related to lifestyle and health, and recently company moves in fabric business also and now the company has plan to touch every consumer category.

Table 1: Products of Patanjali and Other Brands.

S. No.	Type of Products	Patanjali	Competitors
1	Facewash	Neem & Tulsi	Himalya Neem
2	Toothpaste	DantKanti (07) Variants	Colgate, Pepsodent
3	Hair Oil	Kesh Kanti	Dabur Amla, Emami Kesh King
4	Honey	Patanjali Honey	Dabur Honey
5	Shampoo	Kesh Kanti anti dandruff	Head & Shoulder
6	Chyawanprash	PatanjaliChyawanprash	Dabur Chyawanprash
7	Herbal Hand Wash	PatanjaliHerbal&Anti Bacterial	Dettol & Lifebuoy Handwash
8	Noodels	Patanali Atta Noodles	Maggi Atta Noodles
9	Otas	Patanjali Oats	Saffola Oats

Competitor's innovative products to survive in Competitive Market

Since Patanjali has come up with many of the new products so consumer companies have also improvised in innovation in the ayurvedic as well as herbal products.

- Companies like Colgate launched Vedshakti toothpaste and L'Oreal introduced a new product with the natural ingredient in hair care range under Garnier Ultra Blends.
- Godrej Consumer launched neem mosquito oil, a crème hair color that has coconut oil and new variants in natural soaps.
- Hindustan Unilever (HUL) launched hair care products like Ayush antidandruff neem shampoo, Ayush antidandruff neem conditioner, and skin care products like Ayush saffron face cream and pain balms on e-commerce platforms under Ayush Therapy.

Recent advancements in Patanjali Ayurveda

1. In April 2016, Private sector banks such as ICICI and HDFC started providing loans to PatanjaliAyurvedic Limited to increase its production facility in 2017. It is expected that its day to day production will reach up to 2,000 at the end of the financial year 2017.
2. Many industries are showing their interest to sign a marketing deal with PatanjaliAyurvedic Limited. This deal will add to the total fiscal revenue of the company.
3. Patanjali tied with Future group to increase their product penetration, in addition to this, the company also started selling their products through an e-commerce website.
4. Patanjali lists around 30 pipeline products, which will directly show the positive impact on the company fiscal results and it is expected that these products will come in the end of 2017.

According to ASSOCHAM, in India's fast moving consumer goods (FMCG) sector Patanjali Ayurvedic Limited is the most promising, valuable brand witnessing an exponential growth rate. In the fiscal year 2016, when competitors such as Hindustan Unilever, Dabur, ITC, and Colgate – Palmolive, and Procter & Gamble were struggling to hold the double-digit growth rate, Patanjali Ayurveda showed the annual growth of more than 100 percent in product portfolios such as personal care, food and beverages, and Ayurvedic. In current market scenario, Patanjali Ayurvedic Limited has totally changed the game rules. It is believed that this Swadeshi pride in products will stay for long and will definitely make an impact in competitor's sale.

Patanjali Ayurveda's marketing mix products

Baba Ramdev constantly tries to use the Indian brand by saving Indian people and the economic growth of the company. Patanjali is planning to buy all the well-known brands that deal with beverages and food. The service (yoga) that Baba Ramdev sells is the product. This product "Pranayama" is suitable for everyone, regardless of class, religion, culture and success. The unique contribution of Swamiji is to lead a healthy life through simple breathing exercises. Understand and meet the needs and needs of customers. The atmosphere of Patanjaliyogpeeth is world class. Swami Ramdev's Dimya medicines are known to be 100% natural, with little or no side effects. Medicines can be purchased at very low costs. Medicines can cure any disease, from simple colds to cancer. Patanjali has the following products in competition.

– **Dabur Honey:** Patanjali Ayurveda offers you the possibility to buy high-quality honey with about 30% less than Dabur.

Colgate: Patanjali Ayurveda preaches in the beginning how Colgate deceived people. And Ayurveda is the best way to treat gums and teeth.

Patanjali noodles: Patanjali noodles have become famous while Maggi was away from the market and certainly had damaged Maggi, once the king of the noodle market.

UNIQUE SELLING PROPOSITION (USP) "Society without disease - a free world of medicines" was built and embraced the dream of BABA RAMDEV. Extensive research into the ancient results of Pranayama yoga in recent years has shown that good breathing techniques can completely decode all diseases without medication or surgery. He claims to have trained 35,000 people who can prepare yoga classes in different parts of the country. Patanjali Yoga Ashram has 535 branches and 15 centers expand. This means that we are involved in creating new USPs where customer requirements can be realized without frustration. This is a unique sales offer from Patanjali Ayurveda.

Swot Analysis

S - STRENGTH

1. Brand name
2. Strong TQM
3. Excellent marketing strategy
4. Innovative personality
5. Cheap attractive prices

W- Weakness

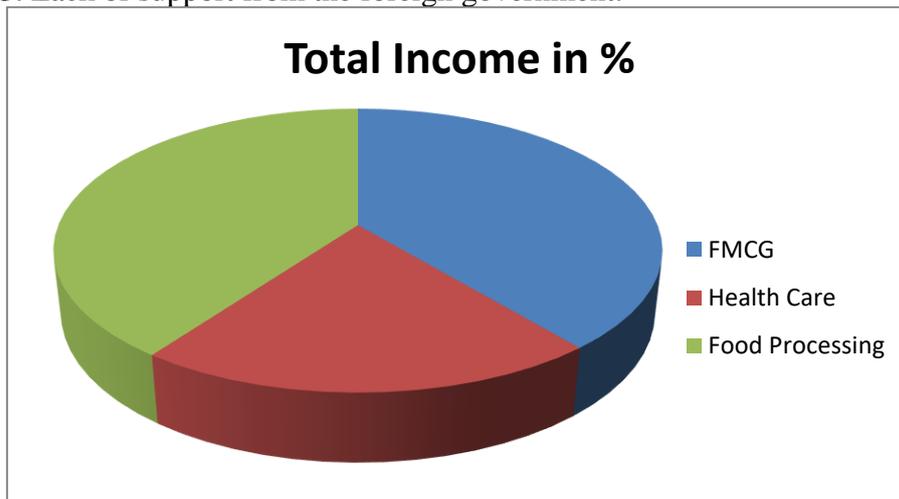
1. No standard advertisements
2. Low concentrations of other important countries
3. Low marketing strategy

O-OPPURTUNITY

1. Possibility to become the best MNC in the world
2. Expansion
3. Maximum market share

T-THREATS

1. Government Provision
2. Maximum taxes
3. Lack of support from the foreign government.



The key to Patanjali's success

1. Low price: Patanjali products offer attractive discounts on competitive products. The company improves profits by delivering products directly from farmers and reducing intermediaries. They can therefore reduce the purchase costs of raw materials and produce products at much lower prices.

2. Strong distribution channels: Patanjali products are sold through three types of medical centers. This actually includes the PatanjaliChikitsalayas clinic. The following is the health and wellness center of PatanjaliArogya Kendra. They also have a non-medical channel, Swadeshi Kendra's.

3. Baba Ramdev because of health and strong brand association:

Patanjali is able to create brand awareness for the health and well-being of the Indian public, mainly through the association Baba Ramdev which attract more people and buy products more often.

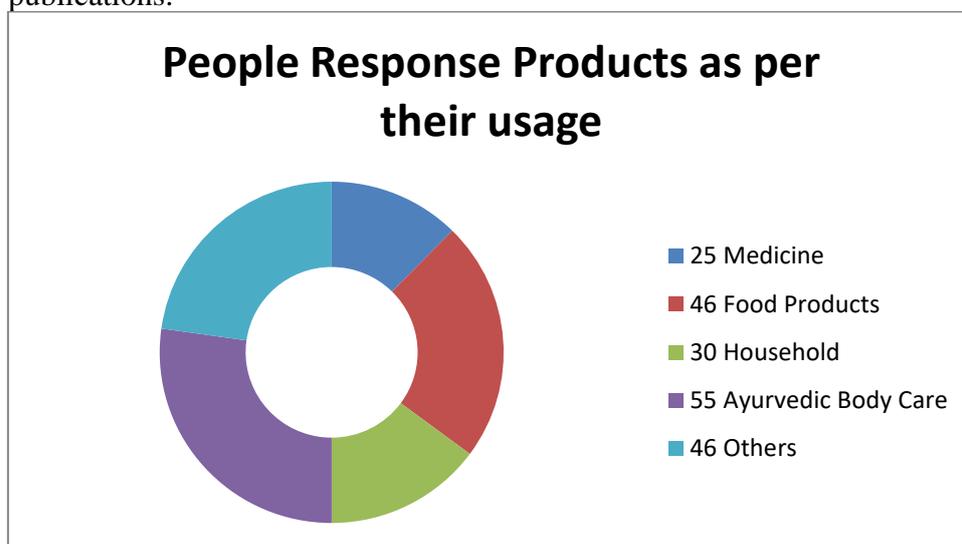
4. It looks natural in a simple package. Patanjali sells products in a very simple package. Now many people will feel that this is not a good strategy. But the truth is that we work for Patanjali. With the help of products such as Patanjali, promoting 'Ayurveda' and 'Health', simple packaging can be a very effective way to advertise. With its natural appearance (especially leaves and herbs), consumers feel health and well-being and feel attracted to buy products.

5. Media Promotion: Baba Ramdev is considered an expert in yoga around the world. He has worked closely with media and media and maintained good relations. He is also known for good relationships with many politicians. So he used both facts to inform the company about the costs for free.

6. Word of mouth: Advertising and promotions generally account for 12-20% of

consumer spending on consumer goods. When a new company enters the company, these expenditures will increase significantly. At the launch, Patanjali followed a unique word-of-mouth model, with no ads on total revenue. Promoting word-of-mouth advertising was a great success for our company because of the loyalty of our customers.

Product categories of Patanjali Ayurveda: The questionnaire was performed on randomly selected 100 people in a specific area. 25 out of 100 people use patanjali medicines and 45 people use food made by patanjali Ayurveda. 30 out of 100 people decided to use the super food products from patanjali Ayurveda. 55 people use Ayurveda products that are naturally made by Patanjali Ayurveda. 45 people use Ayurveda publications.



Competition from patanjali prompts fmcg to hit back

The movement of Ramdev is the movement of competing companies for consumer goods. 2,000 Rupees Patanjali, who plans to increase sales up to 2.5 times in FY16, is the core of the company. Due to strong competition, most fast moving consumer goods (FMCG) companies have been reduced. Consider what the largest FMCG Company, Hindustan Unilever (HUL), does: it has introduced its online herbal brand Ayush 'revived'. Liver Ayush Therapy's e-commerce platform has launched new products with hair care, skin care and pain relief. We intend to move the brand to the general trade in the future. It is also expected that the company will grow 'natural' products to new categories such as health food, oral care and lip management. Sanjiv Mehta, director of HUL, said: "As a consumer goods company, we need to respond to this growing awareness of consumers' growing interest in natural and processed foods." Ayush "We have now taken Indulekha to increase our position in the high-value-added hair oils sector." Directly influenced by Patanjali, such as Dabur, Emami and Himalayas, the company operates in a hub / natural space, strengthens its portfolio and makes its products relevant to consumers.

Emami's director, Harsh Agarwal, said the company is open to acquisitions to strengthen its position in the herbal medicine industry. "Ayurveda has not seen a new trend for a long time, but the emergence of new players is still underway, and we will welcome them and continue to strengthen our range with new variants, launches and acquisitions."

“Dabur is derived from the word ‘Da’ for ‘Daktar’ or ‘Doctor’ and ‘bur’ from Burman.”

Dabur India Ltd is one of India's leading FMCG Companies with Revenues of about US\$750 Million (over Rs 3416 Crore) & Market Capitalization of over US\$3.5 Billion (over Rs 16,000 Crore). Building on a legacy of quality and experience of over 125 years, Dabur is today India's most trusted name and the world's largest Ayurvedic and Natural Health Care Company.

Dabur India is also a world leader in Ayurveda with a portfolio of over 250 Herbal/Ayurvedic products. Dabur's FMCG portfolio today includes five flagship brands with distinct brand identities -- Dabur as the master brand for natural healthcare products, Vatika for premium personal care, Hajmola for digestives, real for fruit juices and beverages and Fem for fairness bleaches and skin care products.

Dabur today operates in key consumer products categories like Hair Care, Oral Care, Health Care, Skin Care, Home Care and Foods. The company has a wide distribution network, covering over 2.8 million retail outlets with a high penetration in both urban and rural markets.

Dabur's products also have a huge presence in the overseas markets and are today available in over 60 countries across the globe. Its brands are highly popular in the Middle East, SAARC countries, Africa, US, Europe and Russia. Dabur's overseas revenues stand at over Rs 500 Crore in the 2008-09 fiscal, accounting for about 20% of the total turnover.

The 125-year-old company, promoted by the Burman family, had started operations in 1884 as an Ayurvedic medicines company. From its humble beginnings in the bylanes of Calcutta, Dabur India Ltd has come a long way today to become one of the biggest Indian-owned consumer goods companies with the largest herbal and natural product portfolio in the world. Overall, Dabur has successfully transformed itself from being a family-run business to become a professionally managed enterprise. What sets Dabur apart from the crowd is its ability to change ahead of others and to always set new standards in corporate governance & innovation.

Company to provide health care through scientifically tested methods. It achieved significant improvements after setting up Research and Development centers and manufacturing automation. The launch of Dabur's Amla hair oil and Chyawanprash was a boon to the expanding business. To keep up with the times, Dabur computerized its operations in 1957. It's DantManjan and digestive tablets were widely accepted as well.

However with a large product portfolio in the market, Dabur had to maintain operational efficiency. To make sure it adjusted to the business environment it became a public limited company in 1986 followed by diversification in Spain in 1992. A major change came when Dabur came up with its IPO in 1994. Because of its position, Dabur's issue was 21 times oversubscribed. Dabur further divided its business into three separate groups:

- Health Care Products Division
- Family Products Division
- Dabur Ayurvedic Specialties Limited

In 1998, for the first time in the history of Dabur, a non-family member took charge. Dabur handed over the operations to professionals. Successful implementation of procedures, timely changes and maintaining its essence, Dabur achieved its highest-ever sales figure of Rs 1166.5 crore in 2000-01.

As FMCG sector was struggling with the slow growth in the Indian economy, Dabur decided to take numerous strategic initiatives, reorganize operations and improvise on its brand architecture beginning 2002. It decided to concentrate its marketing efforts on

Dabur, Vatika, Anmol, Real and Hajmola to strengthen their brand equity, create differentiation and emerge as a pure FMCG player recognized as a herbal brand. This was chosen after a study with Accenture, which revealed that Dabur was mainly perceived as a Herbal brand and connected more with the age group above 35.

Also, larger retailers were making their foray into the FMCG market. Apart from HLL, P&G, Marico and Himalya, ITC was also posing a challenge. The supply chain of Dabur was becoming complex because of the large array of products. Southern markets share in the sales figure was negligible. These factors posed a threat to Dabur and hence small changes were not enough.

In July, Dabur India acquired Discaria Trading, registered in South Africa, for just Rs4,679 (1,000 South African rand). It was a small but important acquisition. With this, the company got an entry to South Africa—a market it has been trying enters for a long time. Dabur already has two manufacturing plants—one each in Nigeria and Egypt.

Africa has been on the radar of Indian packaged goods and personal care firms for the past few years primarily because of projected consumer spending. Consulting firm McKinsey and Co., in a report in 2010, projected consumer spending in Africa to double to \$1.8 trillion by 2020.

Dabur made its first foreign acquisition in 2010 by buying HobiKozmetik Group, a leading personal care products company in Turkey, for \$69 million. It also acquired US-based Namaste Laboratories for \$100 million in the same year.

“Our twin acquisitions took place almost a decade after our entry into the overseas markets and these acquisitions has helped us further consolidate our overseas business. We have emerged as the Indian-born FMCG transnational entirely through the organic route,” says Malhotra.

Prior to these acquisitions, the company primarily sold hair oil under Dabur Amla and Vatika brands in the overseas markets. Now, its international portfolio is dominated by products it got from acquisitions. According to Citi Research, hair oil accounted for about 39% of sales from international markets together, followed by shampoo (14%), hair cream (13%), oral care (11%), skin care (7%) and styling products (about 12%) in FY16, contrary to hair oil contributing about 93% to the business in FY06.

“Namaste business has been steady and we believe local manufacturing and distribution in Africa should provide a fillip to the business from 2017 onwards. Local manufacturing would enhance the price competitiveness of Namaste products that are currently imported and thus at a significant price premium. Steps to enhancing sales and distribution for Namaste products in sub-Saharan Africa should help Dabur deepen its presence. For the other overseas operations, management talks of a somewhat lower adverse forex impact vs the previous year. Geopolitical or economic issues in Saudi Arabia and parts of North Africa remain, but the company’s foray into Iran could be a new positive driver from second half of FY17,” Citi Research said in the 21 September report.

Going forward, Dabur will deepen presence in many of the countries in Africa, primarily where it already has presence, and across markets in South Asia. Two markets where it sees a better future are Myanmar and Iran. The company already has a presence in Myanmar, and it is setting up a factory in Iran—probably the last big market that’s left unexplored due to blockade—to start selling products early next year.

“We are open to exploring inorganic opportunities to fill gaps in our existing portfolio and geographic presence,” says Malhotra, adding that the company has not earmarked any amount for buys and can fund acquisitions through internal accruals and debt.

Given Below is a Segment Wise Competitor list:

Category of products	Dabur's Share	Main Competitors
Fruit Juice	58% Real and Active	Tropicana, Patanjali
Fruit Drinks (coolers)	1% Coolers	Frooti, Mazza, and Slice.
Hair oil Coconut Base	6.4% Vatika	HUL, Marico, Patanjali
Shampoo Vatika	7.1%	HUL, Patanjali, P&G.
Hair Care (overall)	27%	HUL, P&G and Himalaya.
Chyawanprash	36%	Patanjali
Honey	30%	Patanjali
Digestive	37%	Paras and local players.

SWOT analysis of DABUR India Ltd.

STRENGTHS

Century Old Company

Established Brand

Ayurvedic/ herbal Product line

Leader in Herbal Digestives where the product has 90% of the market share

Core knowledge of Ayurveda as competitive advantage

Strong Brand Image

Strong Distribution Network

Extensive Supply Chain

R & D - a key Strength

WEAKNESS

Seasonal Demand (like Chyawanprash in winter and Vatika not in winter)

Profitability is uneven across product line

Low Penetration (Chyawanprash)

Limited differentiation (Vatika)

Unbranded players account for 2/3rd of the total market (Vatika)

OPPORTUNITIES

Extend Vatika brand to new categories like Skin Care and body wash segments

Market Development

Export Opportunities

Innovation

Increasing income level of the middle class

Creating additional consumption pattern

THREATS

Existing Competition like PatanjaliHimami, Baidyanth and Zandu for Dabur Chyawanprash and Marico, KeoKarpin, HLL and Bajaj for Vatika Hair Oil)

New Entrants

Other fields of medicine- Allopathic and Homeopathic

REPORT CARD

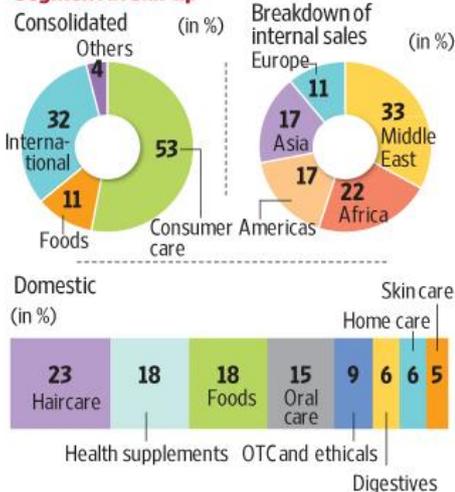
How Dabur India has performed over the years.

Key financials (in Rs cr)

	Net sales	Profit after tax	Reserve and surpluses
FY07	2,043	282	393
FY08	2,361	333	531
FY09	2,808	391	732
FY10	3,391	501	848
FY11	4,077	569	1,217
FY12	5,283	645	1,543
FY13	6,146	763	1,921
FY14	7,073	914	2,482
FY15	7,806	1,066	3,178
FY16	8,436	1,253	3,984

Graphic: Ajay Negi/Mint

Segment break-up



Source: Annual report

Suggestions

FOR PATANALI AYURVEDA LTD.

1. Quality as the most influential factor in purchasing decisions. The price is also important for the purchase decision.
2. The plan always attracts more consumers for a certain brand. At the same time, before the final decision is taken, the consumer will give an idea of what he sees most in the product.
3. Price reductions and additional quantities are two important proposals / plans that consumers encounter when buying
4. People buy more products from the brand that fit the budget, more quantity + less costs + quality.
5. Because of the extra quantity with less or the same price, more satisfaction, quality and other factors, the consumer must switch to a different brand.
6. People are more qualitative and cost-oriented.
7. The consumer withholds the product name on the basis of the company name and the results of the company in the past.
8. There is too much demand for Patanjali products on the market. This is because the shortage regularly occurs in the market.

FOR DABUR INDIA LTD.

1. **Focus on growing core brands** across categories.
2. Reaching out to **new geographies** areas.
3. **Improve operational efficiencies** by leveraging technology.
4. Be the preferred company to meet the health and personal grooming needs of our target consumers with safe, efficacious, natural solutions by synthesizing the deep knowledge of **ayurveda and herbs** with modern science.
5. Provide consumers with innovative products within **easy reach**.
6. **Vatika hair care centre**: On the lines of Marico's Kaya Skin Clinic, Dabur could start a venture called Vatika hair care centre which would provide total hair care solutions. It could have hair care experts to solve hair problems. Services could include dandruff treatment, straightening of hair, treatment for split ends, etc.

7. Position Dabur Chyawanprash as **not** more of a **medicine** but as something which is necessary for health.
8. More initiatives like “**DaburkiDeewar**” to increase brand visibility. It is an initiative to occupy shelf space.

Conclusion

It was really a very great experience to study two big FMCG Companies Dabur India Limited and Patanjali Ayurveda Ltd. After going into all its aspects i.e. its marketing strategies, policies, Product Mix strategies firstly for Dabur we can conclude that the company is excellent on all the fronts. The company's different projects like Sundesh and its social initiatives in Nepal etc. indicates that the company is also loyal towards the society, and all such social responsibilities are very necessary to build a strong customer base and brand loyalty. Through its comprehensive range of products it touches the lives of all consumers, in all age groups, across all social boundaries. While Patanjali Ayurveda was a problem for many marketers in the field of personal marketing Patanjali Ayurveda rattled the entire FMCG sector and caused an uprising in the industry in an era of pure enchantment. And this legacy has helped them develop a bond of trust with our consumers. That guarantees us the best in all products carrying the Dabur name. Dabur has Strong distribution network. Dabur is the Fourth largest FMCG Company of India. Dabur is one of the most trusted brands. What is remarkable is that many people buy because of the pleasure value associated with the product. That is why patanjali attracts reliable brand customers, not price-sensitive customers. Will patanjali continue to grow at the same rate? Or will Patanjali and powerful players become a temporary bubble that will eventually seek a strategy to regain lost market share? Time will tell.

References

1. Kumar V, Jain A, Rahman Z, Jain A. Marketing through spirituality: A case of PatanjaliYogpeeth. *Procedia-Social and Behavioral Sciences*. 2014; 133:481-90.
2. Deb PK. Marketing Medical and Health Tourism in India. *Anvesha*. 2011; 4(1):76.
3. Soni P, Sandhu H. Patanjali: Reinventing Competitive Strategies in Indian FMCG Market. 2017.
4. Shukla P, Shrivastav P. Patanjali-The Swadesi Tit. 2016.
5. Rawal P. Indian Monk Who Wants A Billion-Dollar Company: A Yogic Business Revolution. *International Journal of Management Research and Reviews*. 2016; 6(9):1169.
6. Gupta N, Garg V. Desi Bustle v/s MNC Muscle: How Ramdev'sPatanjali is setting trend for HUL.
7. Sengar A, Sengar A, Sharma V, Sharma V, Agrawal R, Agrawal R. Market development through integrating value chains—a case of Patanjali Food and Herbal Park. *Emerald Emerging Markets Case Studies*. 2017;7(4):1-22.
8. Yadav S. Rapidly Changing Marketing Channels of FMCG Companies-A Case Study of PatanjaliAyurved Limited.
9. Mallick J. (2011, December 28), FMCG stocks outperform Sensex by 35%, *The Hindu Business Line*, Kolkata.
10. Kumar A., Meenakshi N.(2006). *Marketing Management*, New Delhi: (1st ed.). Vikas Publishing House Pvt Ltd, pp 174.
11. Bhattacharjee, A. (June 2011) ‘Media Influence on FMCGs- A Comparative Study Among rural and Urban Households on their Product Purchase Decision’, *Indian Journal of Marketing*, Volume 41, pp 22.

12. Singh, A.K., Pandey S.(2005), Rural Marketing- Indian Perspective, New Delhi: First edition, New Age International Publisher.
13. Singh, P. Nielsen V.P. (2011, November16), FMCG retail will hit \$100 billion by 2025: Nielsen The Economic Times, New Delhi.
14. Where Budget 2012 hurts, Census 2011 soothes, retrieved on March 21, 2012. from <http://profit.ndtv.com/news/corporates/article-where-budget-2012-hurtscensus-2011-soothes>
15. Moneylife (2014), Does poor weather impact FMCG demand in India?, Retrieved from <http://www.moneylife.in/article/monsoon-and-its-impact-in-fmcg-demand>
16. Winning strategies for a smooth ride, OC&C Strategy Consultants, Mumbai, 2012
17. Shula R., Bordoloi M.(2015 November 20), The changing dynamics of India's consumer economy, The Financial Express, New Delhi.
18. "The Bird of Gold The rise of India's Consumer Market", Retrieved from http://www.mckinsey.com/insights/asia-pacific/the_bird_of_gold
19. "Indians' spending on FMCG in modern retail to be \$5 bn by 2015". Retrieved November 15, 2011. from <http://articles.economictimes.indiatimes.com/2011-11-15/news/30401537>
20. FMCG striding ahead, Businessworld Marketing, White book (2011-2012), pp 72.

A Review of Performance of Index Mutual Fund Schemes in India

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Abstract

Mutual Funds have been instrumental in opening up new avenues to investors and have also brought about liquidity in the investment arena thereby being very much transformational to the financial system in India. Mutual Funds considered as financial institutions which exhibit a very dynamic nature, and play a vital role in the economy by helping to mobilize savings of small investors and channelizing it to the capital markets. As such the activities of fund managers have a short-run as well as long-term impact on the savings rate, the stock market and the national economy.

The current paper attempts to measure the risk-return profile of select index mutual fund schemes, evaluate their performance and make a comparative analysis of the performance of these mutual fund schemes with the benchmark Nifty 50. Ten index mutual fund schemes of various AMCs were considered for the purpose of the study. Nifty 50 was considered as the benchmark since it is at large considered to be the overall representative of the stock market performance in India. Data for five years ranging from 1st April 2013 to 31st March 2018 was considered for the purpose of the study. Mean returns, standard deviation, beta and correlation were considered, in order to analyse the performance of the selected index mutual fund schemes. Performance ratios such as Sharpe Ratio, Jensen Ratio and Treynor Ratio were ascertained to understand the comparative performance of the selected schemes. The study concludes that the HDFC Index Fund is the best fund performer with higher average return and lower risk while LIC Index Fund displays an unimpressive performance over the period of the study.

Keywords: Mutual Fund, Index fund, Nifty, Sharpe Ratio, Treynor Ratio, Jensen Ratio.

I. Introduction

In recent years mutual funds have emerged as an important tool for ensuring the financial well-being of individuals and small investors. While on one hand, mutual funds have contributed to the growth of savings and investments and thereby to the growth of the Indian economy, they have also helped families participate in and benefit from this growth. As information and awareness is rising, small investors are reaping the benefits of investing in mutual funds. Yet, the number of retail mutual fund investors in India is small, the main reason being ignorance about the working of mutual funds.

A large number of mutual fund schemes emerged during the last decade, each with its own characteristic investment pattern, thereby giving investors adequate choice of investment opportunities based on their specific investment objectives and risk-taking ability. Index Mutual Funds refer to a category of funds that invest in scripts forming part of a particular index such as BSE Sensex, BSE 200, NSE Nifty 50, Nifty Next 50, etc. As stock market indices cover most industrial sectors within the exchange, index funds are expected to

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replicate a similar image. The active fund manager perpetually attempts to outstrip the index by choosing sectors and stocks they believe will outperform the market in the future. The index funds, on the other hand believe that instead of attempting to guess which investments will outstrip in the future, it is better to replicate the index as the index is the representative of the best companies within all sectors in the economy. As such index funds invest in all the stocks of the index or in some cases solely a few stocks forming a part of the index.

The concept of indexing relies on the belief that investors as a gaggle cannot beat the market. It is strongly believed that picking consistently outperforming stocks is very difficult and indexing provides a way of capitalising on the market performance without incurring high costs. A small investor intending to invest in all the scripts forming part of a specific index could invest in Index Funds and reap the benefits they provide while simultaneously having the benefit of professional management of the portfolio.

II. Literature Review

P. Wilfred Isaac Newton (2015) in his research attempted to analyse the performance of varied Index Mutual Funds as well as Exchange Traded Funds. ANOVA was used to test the difference between the average return of Index Mutual Funds and Exchange Traded Funds. It was found that there exists a significant difference in the returns generated by various schemes during the period of study. Hence, investors have to select the right scheme after taking into consideration the performance of various schemes. The study concludes that neither Index Funds nor Exchange Traded Funds (ETFs) significantly outperform or underperform their respective benchmark indices, inferring that index mutual fund schemes and Exchange Traded Funds have a low tracking error.

Virendravasant Tatake (2013) endeavoured to analyse the performance of select index mutual funds and evaluate investors' response to index mutual fund investments. Primary as well as secondary data was considered for the purpose of the study. Varied statistical tools like Arithmetic Mean, Standard Deviation, Pearson Chi-Square Test and Summative Model of Likert Scale were used for analysing secondary data while primary data was analysed with the help of bar graphs and pie charts. The study concludes that majority of investors prefer sectoral mutual funds due to its attractive performance within the short run.

S. Narend (2014) attempted to compare the performance of Exchange Traded Funds and Index funds in the Indian context. The study was empirical in nature whereby the author made an effort to analyse the performance of Exchange Traded Funds and Index Funds on the basis of three parameters of paramount importance i.e. active returns, tracking error and Jensen's alpha. From the analysis it is revealed that tracking error is lower for Index Funds as compared to Exchange Traded Funds. Analysis of active returns reveals that Exchange Traded Funds have outperformed their respective underlying index throughout the period of the study whereas index funds have indicated a mixed performance over the years. Jensen's alpha is negative for Exchange Traded Funds as well as Index funds indicating that both the fund categories were not capable of providing investors with returns in excess of the market return. The study concludes that in India, Exchange Traded Funds have been out beaten by index funds in terms of a higher Jensen's alpha and lower tracking error while Exchange Traded Funds have performed better in terms of active returns.

Satheesh Kumar, Rangasamy, Vetrivel T. and Athika M. (2016) in their research made an attempt to gauge the performance of mutual funds so as to facilitate the retail investors

in decision making. The study was based on secondary data. Data was analysed using Simple Average Method, Standard Deviation, Ranking Method and Simple Comparative Analysis. From the study it can be inferred that TATA Balanced Fund provided a higher average return as compared to other funds selected for the study. Birla Sun Life Cash Plus and BNP Paribas Overnight Fund have lowest variance. Sharpe ratio indicated that BNP Paribas Overnight Fund has shown superior performance followed by Birla Sun Life Cash Plus and Reliance Liquid Fund.

N.S. Santhi (2012) made an attempt to evaluate the performance of growth oriented open ended ELSS in India by considering monthly returns of the respective funds and comparing them to S&P CNX Nifty which is considered as the benchmark for the purpose of the study. Risk-Adjusted performance measured by Sharpe Ratio, Treynor Ratio and Jensen Alpha have been used to analyse the data. NAVs of tax saving ELSS schemes for the period 2006-07 to 2010-11 were considered for the purpose of the study. The study draws an inference that no funds performed well during the period of the study. From the study it can be inferred that all the schemes followed a similar pattern in terms of returns and move along with the market index S&P CNX Nifty. All funds have invariably generated negative returns throughout 2008-09, however above the market index. From the performance analysis of the schemes, it can be inferred that the average return of all schemes was higher and average risk was lower than the benchmark index.

Mili Kar and Parag Shil (2015) made an attempt to gauge the overall performance of mutual fund schemes so to analyse whether the funds are outperforming or underperforming the NSE G-Sec Composite Index. An effort is also made to evaluate the competency of these funds to make out a strong case for investment. The study evaluates the performance of forty debt oriented open ended schemes having growth and dividend options for the period ranging from April 1996 to March 2011. The study indicated that the variance of only 17.5 percent of the schemes considered for the study was explained appropriately by the market. NSE G-Sec Composite Index outperformed the scheme returns during the period of study.

Anna Agapova (2005) examined the implications of replaceability of conventional index fund schemes and Exchange Traded Funds. The study makes an attempt to clarify the existence of both investment vehicles, which have a claim on the same underlying index, but however differ substantially in terms of their organisational structures. The study analysed the inflows into conventional index fund schemes as well as inflows into Exchange Traded Funds for numerous underlying stock indexes. The study concludes that conventional index funds and Exchange Traded Funds are not perfect substitutes but a certain degree of substitutability does exist among them. The very fact of the coexistence of both instrument types can be attributed to a clientele effect which helps to segregate the two investment vehicles based on various market parameters including different market niches.

III. Objectives

1. To measure the risk-return profile of select index fund schemes.
2. To evaluate the performance of select index fund schemes.
3. To rank the select index mutual fund schemes based on their performance.

IV. Research Methodology

The present study is targeted on evaluating the performance of select Index Mutual Fund Schemes which predominantly consider Nifty as their base index. The study is based on

daily NAVs of ten index mutual fund schemes for the period 1st April 2013 to 31st March 2018. Nifty 50 is considered as the benchmark since it is widely regarded as the most suitable representative of stock market performance in India. To evaluate the performance of select index funds, mean returns, standard deviation, beta and correlation are calculated. Further performance ratios such as Sharpe Ratio, Jensen Ratio and Treynor Ratio are ascertained and interpreted accordingly. An attempt is also made to rank the sample funds on the premise of their performance for the period of the study.

V. Data Analysis

Table 1: Mean Returns, Benchmark Returns, Standard Deviation, Beta & Correlation of Select Index Mutual Fund Schemes

SCHEME	MEAN RETURNS	BENCHMARK RETURNS	STANDARD DEVIATION	BETA	CORRELATION
UTI Nifty Index Fund	0.0550	0.0517	0.9265	0.9901	0.9994
ICICI Prudential Nifty Index Fund	0.0546	0.0517	0.9263	0.9875	0.9969
Principal Nifty 100 Equal Weight Fund	0.0528	0.0517	0.9328	0.9946	0.9957
IDFC Nifty Fund	0.0552	0.0517	0.9247	0.9898	0.9996
LIC Index Fund – Nifty Plan	0.0508	0.0517	0.9267	0.9919	0.9994
SBI Nifty Index Fund	0.0515	0.0517	0.9258	0.9934	0.9993
Taurus Nifty Index Fund	0.0514	0.0517	0.9206	0.9876	0.9990
HDFC Index Fund – Nifty 50 Plan	0.0547	0.0517	0.9188	0.9881	0.9994
Tata Index Fund	0.0512	0.0517	0.9234	0.5481	0.5505
Aditya Birla Sun Life Index Fund	0.0513	0.0517	0.9213	0.9923	0.9991

Source: AMFI (Calculated by author by using Daily NAV)

Table 1 depicts the risk- return profile of select index mutual fund schemes as well as their relation with the benchmark index i.e. Nifty 50. IDFC Nifty Fund (0.0552) has performed well as its mean returns are above the benchmark returns as well as other sample index funds selected for the study whereas LIC Index Fund (0.0508) has lowest mean returns among the sample index fund schemes.

Standard Deviation is the highest in the case of Principal Nifty 100 Equal Weight Fund (0.9328) and the lowest for HDFC Index Fund (0.9188) implying that Principal Nifty 100 Equal Weight Fund is the most volatile fund amongst the ten sample index funds whereas HDFC Index Fund has the minimum risk related to it. From the beta calculation it is ascertained that most of the selected schemes of index funds have a beta value nearer to and less than one which suggests they represent the low risk category.

Most of the index fund schemes possess high positive correlational statistics with the benchmark index i.e. Nifty 50 indicating that any movement in the benchmark index will

influence the performance of the index funds in an exceedingly similar way. However, Tata Index Fund has lower positive correlational statistics of 0.5505 with the benchmark index indicating that any movement in the index will have less impact on the fund's overall performance.

Table 2: Sharpe Ratio, Treynor Ratio and Jensen Ratio

SCHEME	SHARPE RATIO	TREYNOR RATIO	JENSEN RATIO
UTI Nifty Index Fund	0.00313	0.00293	0.00289
ICICI Prudential Nifty Index Fund	0.00274	0.00257	0.00243
Principal Nifty 100 Equal Weight Fund	0.00102	0.00096	0.00089
IDFC Nifty Fund	0.00361	0.00338	0.00337
LIC Index Fund – Nifty Plan	-0.00111	-0.00104	-0.00131
SBI Nifty Index Fund	-0.00007	-0.00006	-0.00023
Taurus Nifty Index Fund	-0.00006	-0.00005	-0.00037
HDFC Index Fund – Nifty 50 Plan	0.00370	0.00344	0.00340
Tata Index Fund	-0.00010	-0.00016	-0.01140
Aditya Birla Sun Life Index Fund	0.00014	0.00013	0.00289

(Source: Authors Compilation)

Sharpe Ratio is highest in the case of HDFC Index Fund (0.00370) whereas it is the lowest for LIC Index Fund (-0.00111) indicating that HDFC Index Fund has the greatest superior risk adjusted return. The highest value of Treynor is of HDFC Index Fund (0.00344) indicating that it has the best reward to volatility ratio whereas LIC Index Fund has the lowest and negative Treynor Ratio of (-0.00104) indicating that the fund has low reward to volatility. It can be inferred that HDFC Index Fund followed by IDFC Index Fund have high risk adjusted performance which is ideal for risk- averse investors.

Results of Jensen alpha unveiled that six among the ten schemes exhibited a positive alpha thereby pointing out to the high ranking performance of these schemes over their benchmark while four schemes had negative alphas. The highest value of Alpha is of HDFC Nifty Fund (0.00340) whereas the rock bottom value of Alpha is of Tata Index Fund (-0.01140) implying that HDFC Nifty Fund has been outperforming against its benchmark during the period of the study.

Table 3: Rankings of Funds Based on their Performance

SCHEME	SHARPE RATIO	TREYNOR RATIO	JENSEN RATIO
UTI Nifty Index Fund	III	III	III
ICICI Prudential Nifty Index Fund	IV	IV	IV
Principal Nifty 100 Equal Weight Fund	V	V	V
IDFC Nifty Fund	II	II	II
LIC Index Fund – Nifty Plan	X	X	VIII
SBI Nifty Index Fund	VIII	VIII	VI
Taurus Nifty Index Fund	VII	VII	VII
HDFC Index Fund – Nifty 50 Plan	I	I	I
Tata Index Fund	IX	IX	IX
Aditya Birla Sun Life Index Fund	VI	VI	III

(Source: Authors Compilation)

The sample index mutual fund schemes are stratified on the premise of the computed values of Sharpe, Treynor and Jensen ratio. It is observed that HDFC Nifty Fund is ranked first with regards to all three ratio categories which mean that it is one among the most effective index funds to invest in. It additionally illustrates higher returns compared to its benchmark index. LIC Index Fund has been ranked tenth as per Sharpe and Treynor ratio and ranked eight as per Jensen ratio implying that the fund displays unimpressive performance for the period of study. Among all the index funds considered for the purpose of the study, HDFC Index Fund has performed well as compared to other alternative funds belonging to the same category. ICICI Prudential Nifty Index Fund, Principal Nifty 100 Equal Weight Fund and Aditya Birla Sun Life Index Fund are the funds having mid rankings which mean that they display moderate performance as compared to other index funds.

VI. Findings & Conclusion

Mutual funds are considered as one of the most effective investment choices among investors as they are proved to be very cost efficient and conjointly simple to start investing in.

Mutual Funds enable investors to purchase stocks or bonds with comparatively lower trading costs than attempting to do it on their own which is possible due to pooling of resources together thereby encapsulating the very essence of a mutual fund. The largest benefit of investment in mutual funds is that it provides the investors the advantage of diversification, minimizing risk & maximizing returns. Index Fund Schemes follow investment pattern supporting the stocks listed on the benchmark index thereby enabling the investors to access market performance while keeping the cost of investment minimal.

The study analyzed the performance of select index mutual funds in India and the following conclusions were drawn from the study:

- Standard Deviation of Principal Nifty 100 Equal Weight Fund (0.9328) is the highest implying that it is the most volatile fund among the sample index funds considered for the study.
- Beta value of all the sample mutual fund schemes are nearer to but less than one indicating that they belong to low risk class.
- Most of the sample index fund schemes have a high positive correlation with the benchmark index except Tata Index Fund exhibited low positive correlation (0.5505).
- HDFC Index Fund has the highest Sharpe Ratio, Treynor Ratio and Jensen Alpha indicating that it is the best performing fund with higher average return compared to its benchmark index accompanied by lower risk.
- LIC Index Fund has been ranked tenth as per Sharpe and Treynor ratio and ranked eight as per Jensen ratio implying that the fund displays unimpressive performance for the period of study thereby making it an unattractive investment choice among the sample index mutual fund schemes.

References

Journals

- [1] Anna Agapova (2011), "Conventional Mutual Index Funds Versus Exchange Traded Funds", *Journal of Financial Markets*, Vol. 14, No. 2, 323-343
- [2] Mili Kar, Parag Shil (2015), "Performance of Selected Debt Oriented Mutual Fund Schemes in India: A Study in comparison with the Market Portfolio Returns", *IOSR Journal of Business and Management*, Vol. 17, Issue 4, 47-57
- [3] N.S.Santhi (2012), "Risk And Return Analysis of Equity Linked Savings Schemes of Mutual Funds in India", *BVIMSR's Journal of Management Research*, Vol-4, No.1, 1-18.
- [4] P. Wilfred Isaac Newton (2015), "Performance Evaluation Of Exchange Traded Funds and Index Mutual Funds: The Indian Experience", *Manonmaniam Sundaranar University, Tirunelveli, India*
- [5] Pooja Mangawa (2013), "Performance Evaluation of Mutual Funds in India", *University Of Rajasthan, India*
- [6] R.Vaishnavi (2003), "Performance of Mutual Funds in India with Special Reference to SBI Mutual Funds", *Sri Krishnadevaraya University, Anantapur, India*
- [7] Rajesh Kumar (2012), "Performance Evaluation of Mutual Funds In India- A Study of Equity and Hybrid Schemes", *Punjabi University, Patiala, India*
- [8] Rajkumari N. Soni (2011), "A Study of the Performance of Selected Schemes of Mutual Fund and an Analysis of Preferences of Mutual Fund Investors", *The Maharaja Sayajirao University of Baroda, Vadodara, India*
- [9] Rangasamy Satheesh Kumar, Vetrivel T., Athika M. (2016), "A Comparative Study on Performance of Selected Mutual Funds with reference to Indian Context", *Asian Journal of Research in Social Sciences and Humanities*, Vol. 6, Issue 5, 96-107
- [10] S. Narend (2014), "Performance of ETFs and Index Funds: A comparative Analysis", *Indian Institute of Technology, Madras, India*
- [11] Sharad Panwar, Sharad Panwar (2011), "Characteristics and Performance Evaluation of Selected Mutual Funds in India", *Indian Institute of Capital Markets 9th Capital Markets Conference Paper*.

- [12] Syed Husain Ashraf, Dhanraj Sharma (2014), "Performance Evaluation of Indian Equity Mutual Funds against Established Benchmarks Index", International Journal of Accounting Research, Vol. 2, Issue 1, 1-7
- [13] Virendra Vasant Tatake (2013), "A Study of Performance of Selected Index Mutual Funds And Investors' Response To Index Mutual Funds Investments", University of Pune, Pune, India

Role of Blockchain Technology in Transforming Supply Chain Management

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Abstract

In today's competitive environment when customers expect the impossible on the purchases made, the supply chain process has become very complex and cumbersome. Apart from this it involves a relatively long period of time to make a payment between a manufacturer and a supplier, or a customer and a vendor. To combat all these problems quoted above, blockchain is considered to be the saviour offering workable solutions to all such problems. Blockchain technology is believed to be the basis of all economic activities. Blockchain technology which has been used to drive bitcoin and other so-called cryptocurrencies has paid off good returns by putting a full stop to the endless ledger of transactions. With the introduction of blockchain technology the world has witnessed a record-breaking growth in the last few years.

Keywords: Supply chain, blockchain technology, applications, transparency, traceability

Introduction

In today's competitive environment when customers expect the impossible on the purchases made, the supply chain process has become very complex and cumbersome. Apart from this it involves a relatively long period of time to make a payment between a manufacturer and a supplier, or a customer and a vendor. Contracts which are drafted to protect the interest of all supply chain partners need to be evaluated by lawyers and bankers which comes at an extra cost. at times when problems creep into this process, friction develops in the relationship among supply chain partners which further creates new types of problems. at times on account of uncertainty interruptions take place in the supply chains process which could require suppliers, providers and clients to deal via central third-party entities, instead of directly with each other. In short what should be simple transactions gets converted into a very lengthy procedure.

To combat all these problems quoted above, blockchain is considered to be the saviour offering workable solutions to all such problems. Blockchain technology is believed to be the basis of all economic activities. Blockchain technology which has been used to drive bitcoin and other so-called cryptocurrencies has paid off good returns by putting a full stop to the endless ledger of transactions. With the introduction of blockchain technology the world has witnessed a record-breaking growth in the last few years.01722704014

It should however be realised that the true advantages of blockchain extend more than just than a transparent and foolproof way of holding and exchanging money. World over blockchain is presently being used for any kind of exchange, agreements or tracking of consignment. Blockchain can also be used with respect to supply chain by applying it to anything from self-executing supply contracts to highly automated cold chain management.

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Blockchain and Supply Chain

A blockchain could be perceived as a distributed, digital ledger. The ledger used by supply chain process involves recording of transactions made in a series of blocks. As a result multiple copies exist and are maintained in multiple computers spread over a large geographical area, which are also called nodes.

The ledger proves to be highly secure since each and every new block of transactions as and when made is immediately linked back to previous blocks in a way that makes tampering highly impossible. Being decentralized, it does not have to depend on any single entity (like a bank) for safekeeping of records. The nodes are connected to the blockchain network get are regularly updated so that the latest versions of the ledger is made available as and when a new transaction is made.

The multiple copies of the ledger prepared with the help of blockchain technology is the true benefit of deploying the technology as every transaction made and added to the blockchain. Any attempt made in falsifying entries in any ledger would require falsifying the multiple copies at the same moment of time which may be practically impossible. Also the chances falsifying ledgers if practical impossible on account of the size of the blockchain networks which necessarily has to be large in order to serve a useful purpose. .

How Blockchain Technology could be used in Supply Chain

With the introduction of the digital currency, Bitcoin which has been built on block chain technology to provide an endless ledger of transactions, the word has witnessed a record-breaking growth in the last few years. In today's dynamic world Blockchain technology is believed to be the basis of all economic activities. Even with respect to supply chain management blockchain technology could be used to deliver end-all solution with high level of transparency together with end to-end visibility even accountability. Nevertheless, in order to derive maximum benefit in supply chain management by deploying blockchain it is imperative to have a thorough understanding of the challenges to be faced in doing so and the related benefits and demerits of the same. This conceptual paper tries to throw light on the challenges, benefits and demerits of blockchain technology when used in supply chain management.

Applications of Blockchain in Supply Chain

The following examples are now in use or can be implemented today using existing technology.

Automotive supplier payments

Blockchain allows the transfer of funds anywhere in the world. Traditional banking methods are not needed. Transfer is direct between payer and payee. It is also secure and rapid – in minutes, compared to days for automated clearing house payments, for example. Bitcoin transfers specifically also offer lower fees. Australian vehicle manufacturer Tomcar uses bitcoin to pay suppliers. Currently, three partners in Israel and Taiwan accept this. Tomcar's supplier agreements use standard terms. The advantage is in the cost savings. On the other hand, the firm is careful to avoid hanging onto too much bitcoin. While bitcoin is international by nature, some national governments see it as a way for companies to make an investment. Companies with bitcoin holdings may therefore be taxed accordingly.

Meat traceability

Product status at each stage of production can be recorded using blockchain. The records are permanent and inalterable. They also allow the tracing of each product to its source.

Global retailer Walmart uses blockchain to track sales of pork meat in China. Its system lets the company see where each piece of meat comes from, its processing and storage, and sell-by date. In the event of product recall, the company can also see which batches are concerned and who bought them.

Electric power micro grids

This example shows how entities of any size can use blockchain. In other words, blockchain is not just for the big players. Smart contracts are being used for redistributing excess power from solar panels. The Transactive Grid is an application running on blockchain to monitor and redistribute energy in a neighbourhood micro grid. The program automates the buying and selling of green energy to save costs and pollution.

RFID-driven contract bids and execution

RFID tags are commonly used in supply chain to store information about products. The tags can be read easily and automatically, and then processed by IT systems. So, the logic goes, why not use them for smart contracts for logistics? The practical setup could be as follows. RFID tags for cartons or pallets store information on delivery location and date. Logistics partners run applications to look for these tags and bid for delivery contract. The partner offering optimal price and service gets the business. A smart contract then tracks status and final delivery performance.

Cold chain monitoring

Food and pharmaceutical products often need special storage. Also, enterprises also see the value in sharing warehouses and distribution centres, instead of each one paying for its own. Sensors on sensitive products can record temperature, humidity, vibration, and other items of interest. These readings can then be stored on blockchain. They are permanent and tamperproof. If a storage condition deviates from what has been agreed, each member of the blockchain will see it. A smart contract can trigger an action to correct the situation. Depending on the size of the deviation, this action may be to simply adjust the storage. However, it could also extend to changing "use-by" dates, declaring products unfit, or applying penalties.

Blockchain and Internet of Things

Other ambitious ideas come from using blockchain and IoT. One suggestion is for smart contracts to manage rentals of driverless cars. A smart contract could check for rental payments. If payment has not been made or simply at the end of the rental contract, the smart contract could lock the car and tell it to drive itself back to the renter.

Challenges to Be Met

Blockchain has its challenges too. Enterprises that want to harness blockchain power for their supply chain will need to watch out for the following.

Ecosystem still in progress

The first telephone was useless until the second one arrived. In time the phone spread all over the world and now we can't do without it. The situation is similar for blockchain and companies that want to do business with specific partners. Those partners will need to buy into blockchain as well. For example, Tomcar mentioned above only uses bitcoin payments for about 2% of the parts it buys. However, niche uses of blockchain are on the rise. It may be just a matter of time until businesses "join the dots" for widespread acceptance.

Currency volatility

Bitcoin is an easy way to start using blockchain. The problem is that bitcoin exchange rates with other currencies can change rapidly. Payment terms must be short enough or flexible

enough to be able to cash in bitcoin and recover the value expected. Bitcoin and other cryptocurrencies (Ether for example for the Ethereum platform) are also volatile in another sense. If one loses the digital key (passcode) to a company's cryptocurrency reserve, there is no other way of getting it back.

Technology and knowhow

Blockchain programming takes a mix of software skills. It also helps to understand economies and businesses, especially one's business. Companies may have to train staff or hire new people with these skills. A company could also outsource its blockchain development to a third party. The best choice for a company would depend on the current situation and future aspirations of business.

Mindset

Blockchain was started by people who wanted to decentralise applications and operations. They wanted to make dependency on centralised entities like banks optional instead of obligatory. This is a new way of thinking. Don't be surprised if it takes supply chain partners a little time to shed their mental shackles and get into the swing of the blockchain movement.

Conclusion

Blockchain can transform supply chains, industries and ecosystems. Interestingly, even organisations like banks, which would seem to be losing out, can see opportunities to use blockchain to streamline their own business. In-depth transformation of supply chains will not happen overnight. However, supply chains can already start using blockchain for small portions of their operations. Smart contracts can help eliminate costly delays and waste currently due to manual handling of paperwork. From there, the door is then open to smarter, faster, more secure supply chain from one end to the other.

References

- i. Brown RG, 'A simple model for smart contracts' (Richard Gendal Brown, 10 February 2015) www.gendal.me/2015/02/10/a-simple-model-for-smart-contracts accessed 24 June 2017.
- ii. H. Zhang, "Research overview of optimization in the process of agricultural products green logistics", *Chinese business & Trade*, no. 33, pp. 126-127, 2011.
- iii. J. Trienekens, Zuurbier, "Quality and safety standards in the food industry developments and challengers", *International Journal of Prod. Econ.*, vol. 113, pp. 107-122, 2008.
- iv. J. Xiao, Z.Y. Liu, B.W. Li, "Research on a Food Supply Chain Traceability Management System Based on RFID", *Journal of Agricultural Mechanization Research*, vol. 34, no. 2, pp. 181-184, 2012.
- v. K. Sari, "Exploring the impacts of radio frequency identification (RFID) technology on supply chain performance", *European Journal of Operational Research*, vol. 207, pp. 174-183, 2010.

Financial Health of Select Commercial Banks in India: A Comparative Study

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Abstract

Banking Sector plays an important role in promoting economic growth of a Nation. This paper quantifies, assesses and compares the financial performance of two Private Sector Banks, HDFC and ICICI and two Public Sector Banks, BOB and IDBI by evaluating and comparing various performance ratios. This research is of analytical and descriptive nature. The data used for the study is entirely of secondary nature and is taken from the financial annual reports of the respective banks for the period from 2013-14 to 2017-18. The study found that, select Private Sector Banks, ICICI and HDFC perform better than the select public sector banks BOB and IDBI.

Key words: Public sector bank, Private Sector Banks, financial performance.

1.1 Introduction

The Banking Sector is the principal constituent of the Financial System, which is directly linked to countries economy. It is the backbone of the Indian economy. A powerful and resilient banking system is the foundation for sustainable economic growth. Banks receives deposits and grants loans and advances to the public. There are various factors that may affect the performance of the banks. In this paper, an attempt has been made to quantify, evaluate and compute the financial performances of selected private and public sector banks.

1.2 Literature Review

- 1) **G.S.Kumari and M.S.V.Prasad (2015)**, evaluated and compared the financial performance of SBI, BOB, ICICI and AXIS Bank. They revealed that, SBI and BOB are performing better than ICICI and Axis bank, but when it comes to expenditure, Private Banks are spending more than Public sector banks. SBI is the top most banks in terms of performance followed by other banks.
- 2) **Sharma and Hemalatha (2014)**, analysed the financial performance of State Bank of India and ICICI Bank by comparing various ratios like return on equity, cash deposit ratio and credit-deposit ratio for the period 2008-09 to 2013-14. The result depicted that, ICICI performed better than SBI and was able to generate more loans from its deposits to the customers.
- 3) **Goel and Rekhi (2013)** measured the relative performance of public and private sector banks by using different proxy indicators for measuring the productivity of banking sector. Segmentation of banking sector was done on bank assets size. The public sector banks are not as profitable as others. It means that the efficiency and profitability are interrelated. The key to increase performance depends upon ROA, ROE and NIM.
- 4) **Padma and Arulmathi (2013)**, Compared and demonstrated that there are significant differences in the performance of SBI and ICICI Bank in terms of deposits

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,investments, Net Profit and Total Assets. The Study concluded that SBI has extensive operations compared to ICICI.

5) **Singh and Tandon (2012)**, compared the performance SBI and ICICI using 11 parameters such as credit –deposit ratio, net profit margin, net worth ratio, etc. for the period 2007-08 to 2011-12. They found that SBI is performing well and is financially sounder than ICICI Bank, but the context of deposit and expenditure, ICICI Bank has better managing efficiency than SBI.

6) **Jha and Sarangi (2011)** , analyzed the performance of seven public sector and private sector banks for the year 2009-10. They used three sets of ratios: operating performance ratios, financial ratios, and efficiency ratios. In all, 11 ratios were used. They found that Axis Bank took the first position, Followed by ICICI Bank and Bank of India.

1.3 Objectives of the Study

- To study the financial performance of HDFC, ICICI, BOB and IDBI.
- To compare the financial performance of the select Banks in India.
- To assess the position of Non Performing Assets (NPAs) among select Banks.

1.4 Research Methodology

For an in depth analysis of profitability , top two private sector (HDFC and ICICI) and top two public sector (BOB and IDBI) banks were selected on the basis of their market capitalisation for the period 2013 to 2017.The market capitalization of the select banks for 2018 is presented in the table.

Table No. 1: Market capitalisation for the year 2018

Banks	Market capitalisation (Rs. in Crores)
Public Sector Banks	
BOB	Rs. 29404.91
IDBI	Rs. 24857.17
Private Sector Banks	
HDFC	Rs. 520,583.79
ICICI	Rs. 228,886.09

The Study is based on the secondary data which has been collected from annual reports and websites of the respective banks, magazines, journals, documents and other published news letter of the Banks. Ratio analysis was applied to analyse and compare the trends in banking business and financial performance.

1.5 Financial Performance Analysis

Table no. 2 Credit Deposit Ratio

Year	HDFC (%)	ICICI (%)	BOB (%)	IDBI (%)
2013-14	83.50	99.19	69.25	86.43
2014-15	85.92	102.04	69.78	83.84
2015-16	85.14	107.17	69.31	80.19
2016-17	89.26	103.28	66.85	81.24
2017-18	91.03	94.73	63.69	71.06
MEAN	86.97	101.28	67.77	80.55

Source: Annual reports of Banks

The above table no. 2.depicts the Credit Deposit ratio of select banks. In the case of Private Sector Banks, ICICI performed better than HDFC, and in the case of Public Sector

Banks, IDBI Performed better than BOB. For the year 2015-16 the credit-deposit ratio for ICICI (107.17) was highest in the 5 years period than that of other banks. It is observed that, over the course of five financial years of the study, the mean value of credit-deposit ratio for ICICI was highest i.e.101.28 than that of HDFC, IDBI and BOB. It can be concluded that, ICICI is continuously performing better than other select banks and is most efficient bank in using its resources effectively.

The above table shows the management capability of the banks and ICICI Bank has the highest ability in converting their deposits into earning advances.

Table no. 3 Interest Expenses to total Expenses ratio

Years	HDFC (%)	ICICI (%)	BOB (%)	IDBI (%)
2013-14	54.56	65.36	69.53	73.44
2014-15	55.70	61.84	69.41	72.31
2015-16	55.11	59.99	67.72	71.61
2016-17	55.34	54.02	57.51	62.51
2017-18	53.68	50.76	60.29	71.19
MEAN	54.88	58.39	64.89	70.21

Source: Annual reports of Banks

Table No.3 shows that, the ratio of interest expenses for IDBI was highly volatile. It decreased from 2013-14 onwards and drastically decreased (62.51) in 2016-17 and again increased in 2017-18. BOB had shown dramatic decrease in the year 2016-17 (57.51) and shown an increase i.e. 60.29 in 2017-18. With regards to ICICI, from 2013-14 (65.36) the ratio had decreased to 50.76 in 2017-18. In the case of HDFC, the ratio has shown flexibility. It increased in the year 2014-15 with 55.70 and also in the year 2016-17 with 55.34 compared to previous year. From this we can conclude that, BOB and IDBI are having high expenses ratio and can be said that these two banks are very inefficient in controlling their expenses. The ratio of HDFC is very less as compared to other Banks which shows its efficiency in managing interest expenses.

Table no. 4. Interest income to total Income ratio

Years	HDFC (%)	ICICI (%)	BOB (%)	IDBI (%)
2013-14	83.40	82.76	90.64	88.61
2014-15	83.68	80.90	89.71	89.92
2015-16	84.14	80.12	90.70	87.53
2016-17	84.92	77.48	89.81	89.15
2017-18	85.05	73.52	86.19	87.39
MEAN	84.23	78.96	89.41	88.52

Source: Annual reports of Banks

The above Table No.4 shows that the ratio of interest income to total income. BOB and IDBI have shown instability in their ratios and was highest in the year 2015-16 (90.70) and in the year 2014-15 (89.92) respectively.

Whereas the situation is different with HDFC and ICICI. The ratio of ICICI drastically decreased from 2014-15 onwards and the ratio of HDFC has shown a significant growth. People preferred to invest in BOB and IDBI.

Table no. 5. Net Performing Assets to Net Advances ratio

Year	HDFC (%)	ICICI (%)	BOB (%)	IDBI (%)
2013-14	0.33	0.77	1.28	1.58
2014-15	0.27	0.97	1.52	2.48
2015-16	0.25	1.61	1.89	2.88
2016-17	0.27	2.98	5.06	6.78
2017-18	0.20	5.43	4.72	13.21
MEAN	0.26	2.35	2.89	5.39

Source: Annual reports of Banks

Banks with high level of NPAs effectively have lesser funds to advance i.e. lesser funds on which they can potentially earn interest income. From the above table no.5, it can be observed that, BOB and IDBI have continuously rising bad loan ratio and needs to pay immediate attention.

BOB and IDBI recorded highest NPA to advance ratio 5.06 and 13.21 in the year 2016-17 and 2017-18 respectively. ICICI bank also recorded growth in their ratio i.e. 5.43 in the year 2017-18 as compared to the year 2013-14 (0.77). HDFC bank as compared to all the other banks recorded lowest NPA ratio and can be said that bank was efficient in controlling and managing its NPAs.

It can be concluded that, the NPA problem is far graver for PSBs compared to their private sector peers.

Table No. 6. Growth of Profit (in 000's)

Year	HDFC (Rs.)	%Change	ICICI (Rs.)	%Change	BOB (Rs.)	%Change	IDBI (Rs.)	%Change
2013-14	69,002,800	-	83254727	-	44807200	-	18820837	-
2014-15	87,645,057	27.01	98104770	17.83	45410830	1.35	11214027	(40.41)
2015-16	107,000,484	22.08	111753549	13.91	33984353	(25.16)	8733884	(22.12)
2016-17	128,173,250	19.79	97262873	(12.97)	-53955373	(258.77)	-36648025	(519.61)
2017-18	152,874,0	19.27	98010906	0.77	13831360	(125.63)	-51581396	40.75

	22							
Mean	10893912 2.6	-	97677365	-	16815674	-	-9892134.6	

Source: Annual reports of Banks

The above table highlights that the mean value of net profit was higher for HDFC (Rs. 108939122.6) Compared to that of ICICI (Rs. 97677365) and BOB (Rs. 16815674) during the period of the study. The above table also shows that the annual growth rate of profit for HDFC was highest in the year 2014-15 i.e. 27.01 then it shows a continuous decrease. The annual Growth Rate of ICICI was positive in the year 2014-15 to 2015-16 and then the rate decreased. The Profit growth rate for BOB was positive in the year 2014-15 and then it turned negative. The profit growth rate for IDBI recorded decreasing profits. The growth of profit declined for Public sector banks showing losses in 2016-17 and 2017-18. Thus we can conclude that, Private Banks are making huge profits as compared to Public sector banks.

Table No. 7. Total Interest Income (in 000's)

Year	HDFC (Rs.)	% Change	ICICI (Rs.)	% Change	BOB (Rs.)	% Change	IDBI (Rs.)	% Change
2013-14	358,610,213	-	400755969	-	351966544	-	250643004	-
2014-15	425,550,196	18.67	441781528	10.23	389397095	10.63	265975137	6.12
2015-16	506,664,925	19.06	490911399	11.12	429635570	10.33	281539520	5.85
2016-17	631,615,614	24.66	527394348	7.43	440612774	2.55	280431015	(0.40)
2017-18	732,713,529	16.00	541562793	2.69	421999298	(4.22)	277913673	(0.90)
Mean	531,030,895	-	480481207	-	406722256	-	271300469	

Source: Annual reports of Banks

From the above table no.7 it can be observed that, mean value of total interest income was highest for the HDFC bank (Rs.531,030,895) compared to that of lowest of IDBI bank Rs.271300469. The table also depicts annual growth rate of interest income, for HDFC bank recorded highest i.e. 24.66 in the year 2016-17. For ICICI bank income rate showed decreasing trend except for the year 2015-16 when it was highest (11.12) compared to other financial years. BOB and IDBI growth rate decreased drastically then became negative.

To conclude we can say that, Private sector banks earn more annual interest income compared to PSUs.

Table No. 8. Total Interest Expenditure (in 000's)

Year	HDFC (Rs.)	%Change	ICICI (Rs.)	%Change	BOB (Rs.)	%Change	IDBI (Rs.)	%Change
2013-14	196,954,474	-	262091848		238813891		193911888	
2014-15	234,454,516	19.04	277025886	5.69	269743642	12.95	205760381	6.11
2015-16	272,884,553	16.39	300515294	8.48	297763241	10.38	224060995	8.89
2016-17	340,695,748	24.85	315153949	4.98	313214257	5.15	219538077	(2.02)
2017-18	380,415,844	11.66	324189585	2.87	286865191	(8.41)	220397056	0.39
Mean	285,081,027	-	194518780.4	-	281280044.4	-	212733679.4	-

Source: Annual reports of Banks

The above table highlights interest expenditure and % increase or decrease of expenditure for the 5 years period, from 2013-14 to 2017-18. HDFC & ICICI recorded its highest expenditure i.e. Rs. 380,415,844 & Rs.324189585 respectively in the year 2017-18. Whereas BOB and IDBI recorded its highest expenditure i.e. Rs.313214257 in the year 2016-17 and Rs. 224060995 in the year 2015-16 respectively

In case of mean value of total interest expenditure, ICICI bank shows lowest (Rs.194518780.4) of all the other banks followed by IDBI (Rs.212733679.4), which shows that, banks were able to control its expenditure to a considerable extent.

HDFC and BOB have high average value of expenditure and needs to pay immediate attention in controlling the same.

Table No.9.Total Deposits (in 000's)

Year	HDFC (Rs.)	%Change	ICICI (Rs.)	%Change	BOB (Rs.)	%Change	IDBI (Rs.)	%Change
2013-14	2,960,917,699	-	2926136257		4738833375		2271164745	
2014-15	3,670,803,323	23.98	3319136570	13.43	5688943885	20.05	2357736325	3.81
2015-16	4,502,836,477	22.67	3615627301	8.93	6175595233	8.55	2598359739	10.21
2016-17	5,458,732,889	21.23	4214257086	16.56	5740378722	(7.05)	2657198313	2.26
2017-18	6,431,342,479	17.82	4900390648	16.28	6016751296	4.81	2685380959	1.06
Mean	4,604,926,573	-	3795109572	-	5672100502	-	2513968016	-

Source: Annual reports of Banks

Bank can affect the money supply through demand deposits or loans that the bank funds through cash deposits it receives. The above table no.9 depicts that the mean deposits of BOB and HDFC was higher Rs.5672100502 and Rs.4,604,926,573 respectively as compared to ICICI and IDBI i.e. Rs.3795109572 and Rs.2513968016 respectively . The table also highlights total deposits rate for the 5 years period. BOB shows tremendous decrease in their deposit rate from 20.05 in 2014-15 to 4.81 in 2017-18.IDBI recorded lowest rate of deposit compared to all the other banks i.e. 3.81 (2014-15) to 1.06 (2017-18). ICICI rate of deposit increased to a considerable extent from 2014-15 (13.43) to 2017-

18 (16.28). HDFC bank recorded highest rate of deposit in the year 2014-15 i.e. 23.98 compared to all the other banks.

So it can be concluded that, bank customers prefer to deposit their money in BOB and HDFC bank as compared to ICICI and IDBI.

Table No. 10. Total Advances (in 000's)

Year	HDFC (Rs.)	%Change	ICICI (Rs.)	%Change	BOB (Rs.)	%Change	IDBI (Rs.)	%Change
2013-14	2,472,451,151	-	2902494351		3281857649		1963064479	
2014-15	3,154,188,602	27.57	3387026492	16.69	3970058108	20.97	1976860036	0.70
2015-16	3,834,079,720	21.55	3875220728	14.41	4280651389	7.82	2083768665	5.41
2016-17	4,872,904,174	27.09	4352639419	12.32	3837701803	(10.35)	2158934489	3.61
2017-18	5,854,809,871	20.15	4642320842	6.66	3832592231	(0.13)	1908259271	(11.61)
Mean	4,037,686,704	-	3831940366.4	-	3840572236	-	2018177388	-

Source: Annual reports of Banks

Advances serve an instrumental role in helping banks in their liquidity needs, in both times of stability and crisis. HDFC bank stood 1st in the race with a mean value of Rs. 4,037,686,704 followed by BOB standing on 2nd position (Rs. 3840572236). ICICI and IDBI stood on 3rd and 4th position with a mean value of Rs.3831940366.4 and Rs. 2018177388 respectively. Looking at the above table no.10 we can observe that, BOB and IDBI advance change rate tremendously decreased from the previous years and then became negative. ICICI and HDFC also recorded instability in their rate.

As compared to all the other select Commercial bank for the study, HDFC bank recorded highest % increase in its advance rate i.e. 27.57 in the 2014-15 and was able to provide maximum credit to its customer over the 5 years period of the study.

Table No.11 Rank as per Parameter

Parameters	HDFC	ICICI	BOB	IDBI
Credit-Deposit Ratio	2	1	4	3
Interest Expenses to Total Expenses	1	2	3	4
Interest Income to Total Income	3	4	1	2
Net Performing Assets to Net Advances	1	2	3	4
Growth of	1	2	3	4

Profit				
Total Income	1	2	3	4
Total Expenditure	4	1	3	2
Total Deposits	2	3	1	4
Total Advances	1	3	2	4
Average	1.78	2.22	2.56	3.44
Rank	1	2	3	4

Conclusion

From the overall study it is observed that, HDFC bank have less NPAs as compared to all the other banks selected for the study and thus able to generate maximum profit and lend more advances to its customers followed by ICICI bank. BOB and IDBI bank really needs to pull up their socks if they want to compete with these banks and control and manage its bad loans in order to increase their profit margin.

We can conclude that, HDFC is financially a healthy and is the top most banks in terms of performance followed by ICICI, BOB and IDBI.

References

Jha D K and Sarangi D S (2011), "Performance of New Generation Bank in India: A Comparative Study", International Journal of Research in Commerce and Management, Vol.2, No .1, pp. 85-89.

Singh Anurag B and Tandon Priyanka (2012) "A Study of Financial Performance: A Comparative Analysis of SBI and ICICI Bank", International Journal of Marketing, Financial Services and Management Research, Vol 1 No.11 pp 56-71

Padma D and Arulmathi V (2013), "Financial Performance of SBI and ICICI Bank: A Comparative Study". International Journal of Customer Relations, vol.1 No.1 pp.16-24

Goel Cheenu and Rekhi Chitwan Bhutani (2013), "A Comparative Study on the Performance of Selected Public and Private sector Banks in India." Journal of Business Management and Social Science Research, Vol.2 No.7 pp 46-56.

Sharma Pooja and Hemalatha (2014), "Financial Performance of SBI and ICICI Bank: A Comparative Analysis". International Journal of Research Aspects of Engineering and Management, Vol.1. No.1.pp 20-24.

G.S.Kumari and M.S.V.Prasad (2015), "A comparative study of the financial performance of selected Public and Private Sector Banks" The UIP Journal of Bank Management, Vol.XIV No.4 pp.7-18.

Websites:

<http://www.icicibank.com>

<http://www.hdfc.com>

<http://www.bob.com>

<http://www.idbi.com>

<https://www.mapsofindia.com>

<https://www.moneycontrol.com>

ANNEXTURE 1

**HDFC
BANK**

(DATA COLLECTED FROM ANNUAL REPORTS OF
BANK FROM 2013- 14 TO 2017-18)

(IN 000's)

		2013	2014	2015	2016	2017
1	INTEREST INCOME	358,610,213	425,550,196	506,664,925	631,615,614	732,713,529
2	TOTAL INCOME	429,939,858	508,525,212	602,121,760	743,732,155	861,489,858
3	INTEREST EXPENSES	196,954,474	234,454,516	272,884,553	340,695,748	380,415,844
4	TOTAL EXPENSES	360,937,058	420,880,155	495,121,276	615,558,905	708,615,836
5	PROFIT AFTER TAX	69,002,800	87,645,057	107,000,484	128,173,250	152,874,022
6	LOANS/ ADVANCES	2,472,451,151	3,154,188,602	3,834,079,720	4,872,904,174	5,854,809,871
7	DEPOSITS	2,960,917,699	3,670,803,323	4,502,836,477	5,458,732,889	6,431,342,479
8	NET INCOME RATIO	83.40939002	83.68320507	84.14658939	84.9251454	85.05190423
9	NET EXPENSES RATIO	54.56754014	55.70576641	55.11468932	55.34738353	53.68435543
10	NET NPA TO NET ADVANCES	0.33%	0.27%	0.25%	0.27%	0.20%
11	CREDIT (ADVANCES)DEPOSIT RATIO	83.50286642	85.92638517	85.1481003	89.26804577	91.03557912

ANNEXTURE

2

ICICI BANK

(DATA COLLECTED FROM ANNUAL REPORTS OF BANK FROM 2013- 14 TO 2017-18)

(IN 000's)

		2013	2014	2015	2016	2017
1	INTEREST INCOME	400755969	441781528	490911399	527394348	541562793
2	TOTAL INCOME	484212981	546060249	612672704	680624864	736607624
3	INTEREST EXPENSES	262091848	277025886	300515294	315153949	324189585
4	TOTAL EXPENSES	400958254	447955479	500919155	583361991	638596718
5	PROFIT AFTER TAX	83254727	98104770	111753549	97262873	98010906
6	LOANS/ ADVANCES	2902494351	3387026492	3875220728	4352639419	4642320842
7	DEPOSITS	2926136257	3319136570	3615627301	4214257086	4900390648
8	NET INCOME RATIO	82.76440011	80.90344038	80.12620699	77.48678838	73.52120388
9	NET EXPENSES RATIO	65.36636804	61.84228098	59.99277348	54.02373721	50.76593347
10	NET NPA TO NET ADVANCES	0.77	0.97%	1.61%	2.98%	5.43%
11	CREDIT DEPOSIT RATIO	99.19204357	102.0454091	107.1797618	103.2836709	94.73368912

ANNEXTURE

3

BOB

(DATA COLLECTED FROM ANNUAL REPORTS OF BANK FROM 2013- 14 TO 2017-18)

(IN 000's)

		2013	2014	2015	2016	2017
1	INTEREST INCOME	351966544	389397095	429635570	440612774	421999298
2	TOTAL INCOME	388272793	434024536	473655520	490601390	489579907
3	INTEREST EXPENSES	238813891	269743642	297763241	313214257	286865191
4	TOTAL EXPENSES	343465593	388613706	439671167	544556763	475748547
5	PROFIT AFTER TAX	44807200	45410830	33984353	-53955373	13831360
6	LOANS/ ADVANCES	3281857649	3970058108	4280651389	3837701803	3832592231
7	DEPOSITS	4738833375	5688943885	6175595233	5740378722	601675129
8	NET INCOME RATIO	90.64929358	89.71776079	90.70633654	89.81074717	86.19620454
9	NET EXPENSES RATIO	69.53065922	69.41176748	67.7240773	57.51728346	60.29764942
10	NET NPA TO NET ADVANCES	1.28	1.52	1.89	5.06	4.72
11	CREDIT DEPOSIT RATIO	69.25454831	69.78550304	69.31560809	66.85450541	636.9869796

ANNEXTURE 4

(DATA COLLECTED FROM
ANNUAL REPORTS OF BANK
FROM 2013- 14 TO 2017-18)

IDBI

(IN 000'S)

		2013	2014	2015	2016	2017
1	INTEREST INCOME	250643004	265975137	281539520	280431015	277913673
2	TOTAL INCOME	282838062	295762680	321616241	314534587	317992017
3	INTEREST EXPENSES	193911888	205760381	224060995	219538077	220397056
4	TOTAL EXPENSES	264017225	284548653	312882357	351182612	309573413
5	PROFIT AFTER TAX	18820837	11214027	8733884	-36648025	-51581396
6	LOANS/ ADVANCES	1963064479	1976860036	2083768665	2158934489	1908259271
7	DEPOSITS	2271164745	2357736325	2598359739	2657198313	2685380959
8	NET INCOME RATIO	88.61714093	89.92856604	87.53896231	89.15744932	87.39643077
9	NET EXPENSES RATIO	73.44668061	72.31114217	71.61189821	62.51393705	71.19379338
10	NET NPA TO NET ADVANCES	1.58	2.48	2.88	6.78	13.21
11	CREDIT DEPOSIT RATIO	86.43426169	83.84567922	80.19554158	81.24852701	71.06102635

Analysing The Behaviour of Investor's In Mututal Funds– an Empirical Study

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ABSTRACT

This paper attempts to analyze Mutual Funds have emerged as an important financial intermediary globally, particularly in India where retail investors represent 97.7% of the 4.70 crore investor accounts. Mutual Funds protect the interest of the small investors not only from the downside market risk through the diversification of risks, but also provide the benefits from the upward market returns. It also plays a key role in the inflow of capital to the financial market. The present paper is divided into two parts; the first part studies the investment options of investors of India and second part analyses the behaviour of investors towards Investment Options.

Keywords: *Mutual funds, Investors, Financial markets, Investment options.*

Introduction

In Investment option we do have multiple options but corporate bonds and also the securities issued by government which is in accordance with SEBI will receive the interest amount from the company on a maturity period or for a specific period of time. An investment holder who receives interest from time to time at the end of the maturity period. RBI guarantees the central government or issued by state governments is a negotiable instrument that identifies the government's debt obligations. The short term securities will have a maturity period of less than a year and will also have a longer period of maturity.

High risk investment options are the roots of the commodity market in the 17th century, when it was marketed in Japan were rice futures. Today precious metals, other metals, are to facilitate trade in agricultural products, commodities, livestock and energy. The investment in E-Gold offers to buy gold in small denominations of one gram for small investors and opportunities for many of them. Modern investment system has been developed at a rapid pace with the beginning of the stock market trading security trade marks the last step in the development of modern investment. People depending on that investment in the stock market appreciation of their economies and, as a result, any investment is generally presumed to risk, securities, portfolio value factors and forces upward to move towards the bottom and the stock market factors and the company's performance strengths, more individual changes in the general market conditions, the level of interest rates, Win Exchange rates, changes in government policy, laws fiscal, regulatory requirements are the current political and economic environment, therefore, investors should have a handful of knowledge about performance values and should re-evaluate and update, changed expectations and goals in light of their various re-evaluated investment commitments. STOCKS produce high returns only when the weather is conducive to investment and divestment, which needs expertise and investment to understand market

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movements in turn. For these investors, who have such experience and time, mutual funds have become an art form of investment that reduces risk at a lower cost and increasing diversification.

Objectives of the Study

1. To study the concept of investment options of investors.
2. To study the behaviour of investor's towards various investment options.

Analysing the Behaviour of Investors

The analysis of studying the behaviour is one more objective of the study of Indian mutual fund investors in terms of the savings what they do. And also the researcher has studied their perception to analysis the objectives with the help of the primary data or we can say as questionnaire the behaviour and perception of investors in mutual funds are studied. This was achieved by comparing the mutual funds with various investment options. In the study we can observe that there was nearly size of the sample was studied.

The classification of data for demographic profile is done below as Annual Income, Savings per year, Investors Age, Qualification, AGE and at the end Profession.

Table -1: The analysis of the behaviour of Investors

S.NO.	CATEGORY OF RESPONDENTS	RESPONDENTS IN NUMBER	TOTAL PERCENTAGE VALUE
1	ANNUAL INCOME OF RESPONDENTS (Rs.)		
i	Less than 3,00,000	67	15.00%
ii	3,00,000 to 5,00,000	101	23.00%
iii	5,00,000 to 8,00,000	163	37.00%
iv	More than 8,00,000	109	25.00%
2	ANNUAL SAVINGS (Rs.)		
i	Less than 50,000	59	13.00%
ii	50,000 to 1,00,000	113	26.00%
iii	1,00,000 to 1.50,000	119	27.00%
iv	More than 1,50,000	149	34.00%
3	AGE (Yrs.)		
i	Less than 30 yrs.	125	28.00%
ii	31 to 40 yrs.	175	40.00%
iii	41 to 50 Yrs.	117	27.00%
iv	More than 50 Yrs.	23	5.00%
4	GENDER		
i	Male	265	60.00%
ii	Female	175	40.00%
5	QUALIFICATION		
i	Under Graduate	13	3.00%
ii	Graduate	64	15.00%
iii	Post Graduate	145	33.00%

iv	Professional Qualification	218	49.00%
6	PROFESSION		
i	Private Sector Employee	175	40.00%
ii	Government Employee	134	30.00%
iii	Business	42	10.00%
iv	Professional	89	20.00%

*** Table: Demographic Profile of respondents, Size is 440**

1. ANNUAL INCOME

When we see that we can make a clear understanding that the highest percentage is with 5 lakhs to 8 lakhs which is 37% and above 8 lakhs is 25% and 3 lakhs to 5 lakhs is with 23% and least is given to less than 3 lakhs which is 15%.

2. ANNUAL SAVINGS

The savings of investors can be seen as follows, the highest percentage is given to 34% for more than 1.5 lakhs per Annam and the second level is given to 1 lakh to 1.5 lakh per annum, in the third category 50000 to 100000 is given with 26% and the least is given to less than 50000 which is 13%

3. AGE

In the category of AGE we have four option which is given as follows, highest is given to 31-40 years with a percentage of 40, the second level is given to less than 30 years which is 28% and 41-50 years respondents are in the percentage of 27 and the least percentage is with More than 50 years which is 5%.

4. GENDER

Highest numbers of Respondents are male with 60% and the rest are females with 40% the figures are 265 males and 175 females.

5. QUALIFICATION

The respondent is having professional qualification degree with a percentage of 49 and post graduates are 33% and Graduates are 15% and lastly under graduate were 3%.

6. PROFESSION

The investors or respondents were holding a profession where private sector employees are with 40% and Government Employee were 30% whereas professional are with 20 % and at the end 10% respondents are holding business.

Table - 2: No of investors for their Investment Period

Period	Short term	Medium	Long term
Investment Period	(Less than 1 yr.)	(1 to 5 yrs.)	(More than 5 yrs.)
% of	23	35	42

In the above period the table the number of investors is professing the long term period for investment as they are happy in investing in long term plans like 42 percent of respondents are stating that they would be going for more than 5 years of plan for investment. Whereas some respondents are stating that Medium terms are best options which is for 1-5 years and the respondents are 35% and the least percentage is given to short term which for less than 1 year the percentage is 23.

INVESTMENT OPTIONS

To achieve the objective of Investors behvaiour we should also study the perception of investors towards mutual funds. For achieving these perceptions, the investors were asked

for various investment options where they are presently investing and we asked to rate the top three investment options and we also asked them if in future if they have savings what options they would be selecting and will be ranking them and ranking as per number of investors are also can be seen.

Table -3: Table showing the perception of investors towards Mutual Funds

S. No.	Option	Ranking as per No of investors		Ranking as per amount of investment		Ranking as per future preference of investors	
		Score	Rank	Score	Rank	Score	Rank
1	FD	293	1	267	3	25	8
2	Insurance	114	9	98	9	44	7
3	P O/ NSC	173	5	128	7	17	9
4	Gold/e- gold	185	4	415	2	647	3
5	Bonds	134	8	103	8	54	6
6	PPF	168	6	200	6	75	5
7	Real Estate	255	2	746	1	736	2
8	MUFUs	218	3	206	5	143	4
9	Shares	139	7	228	4	749	1

In the above table we can see that we got nine Options which was given by the investors among which first we are about to study regarding investment made and the top priority was given to Fixed Deposits with a score of 293 and second rank was given to Real estate with a score of 255 and third rank was given to Mutual funds and Fourth rank was given to Gold, Fifth rank was given to Post Office savings and National service certificate, Sixth rank is given to Provisional provident fund, Seventh rank is given to Shares and least preference of Rank is given to Bonds.

Ranking for current investment is given as follows which is also shown in the table, The first priority is given to real estate, the second rank is given to gold and e-gold and third was given to Fixed deposits, Fourth rank is given to Shares and fifth rank was allotted to Mutual Funds, Sixth rank was given to provisional provident fund and seventh was given to Post office savings and National service certificate, The respondents were least preference of rank is allotted to bonds as the current investment by the investors are not happy with bonds for which they have given a rank of eight.

Ranking as per future priority of investors, in future the investors will focus on shares will be their first priority, second priority will be given to Real estate and the third priority is given to Gold and e-Gold and fourth priority will be provided to Mutual Funds, The preference of future investment for rank fifth is PPF which is provisional provident fund and sixth rank is Bonds, where bonds were in eight position in Current investment options, and the seventh position in future investment option is insurance and at the end last priority is given to Fixed deposits.

Table-4: Method of Investment

Investment Method	Financial Advisor/ Broker	Self	Family & Friends
% of Respondents	47	40	13

In the above table we can observe that Mostly investment made by the investors are done by financial advisors with 47% and by self it is 30% whereas by family and friends they have only 13%.

Parameters for Slecting Investment Options

Investors will often look after some parameters such as RISK, Return, Tax savings, Liquidity, Procedural Understanding for making proper decision making of investments. Through questionnaire on a scale of 5 was taken and the respondents were asked to rate the same for RISK, Return, Tax savings, Liquidity, Procedural Understanding, the scale is as follows 1 as very low 2 as low 3 as moderate 4 as moderate high and 5 as very high can be checked in table

Table No -5: Table for Description of Return, Risk Liquidity, Tax Savings, Procedural Understanding

Investment Options	Description	Return	Risk	Liquidity	Tax Saving	Procedural Understanding
FDs	Score Sum	895	504	1810	1838	2124
	Score Mean	2.03	1.15	4.11	4.18	4.83
	Std. Dev.	0.66	0.35	0.71	0.64	0.39
Insurance	Score Sum	504	1340	884	2130	906
	Score Mean	1.15	3.05	2.01	4.84	2.06
	Std. Dev.	0.35	0.55	0.54	0.38	0.71
PO/NSC	Score Sum	906	513	1354	1798	1812
	Score Mean	2.06	1.17	3.08	4.09	4.12
	Std. Dev.	0.62	0.37	0.65	0.68	0.63
Gold/ e-gold	Score Sum	1826	890	905	525	1384
	Score Mean	4.15	2.02	2.06	1.19	3.15
	Std. Dev.	0.58	0.67	0.59	0.4	0.65
Bonds	Score Sum	1378	892	1364	1362	1360
	Score Mean	3.13	2.03	3.1	3.1	3.09
	Std. Dev.	0.65	0.66	0.65	0.66	0.67
PPF	Score Sum	1367	516	916	1812	2151
	Score Mean	3.11	1.17	2.08	4.12	4.89
	Std. Dev.	0.68	0.38	0.7	0.71	0.31
Real Estate	Score Sum	2134	1368	520	1814	906
	Score Mean	4.85	3.11	1.18	4.12	2.06
	Std. Dev.	0.36	0.57	0.39	0.47	0.41
MUFU	Score Sum	1823	1819	1825	1364	900
	Score Mean	4.14	4.13	4.15	3.1	2.05
	Std. Dev.	0.45	0.42	0.45	0.56	0.46
Shares	Score Sum	2155	2159	1808	912	522
	Score Mean	4.9	4.91	4.11	2.07	1.19
	Std. Dev.	0.3	0.29	0.45	0.47	0.39

Table No - 6: Ranks based on Investor's perception

Investment Options	Return	Risk	Liquidity	Tax Saving	Procedural Understanding
FDs	8	8	2	2	2
Insurance	9	4	7	1	6
PO/ NSC	7	7	4	4	3
Gold/e- gold	3	6	6	7	4
Bonds	5	5	3	5	5
PPF	6	7	5	3	1
Real Estate	2	3	8	3	6
MUFUs	4	2	1	5	7
Shares	1	1	2	6	8

RETURN: Return stands for investment returns which indicate the enhancement in capital. In the above table it shows that the mean score value is highest for shares which is 4.90 followed by Real estate which has a mean score value of 4.85 and which stands in second rank. Gold and E-gold holds a rank of Four which has a mean score of 4.15 and whereas Bonds stands for Fifth rank with a mean score of 3.13, Provisional provident Fund stands for Sixth with a score of 3.11, Postal office and National service scheme are at seventh rank where it has a mean score of 2.06. And at the end 8 and 9 ranks are for Fixed Deposits and Insurance with a mean score of 2.03 and 1.15 respectively.

RISK: Risk stands for various uncertainties which are associated with our investments, for risk factor the investment options ranks and score mean can be discussed below, Shares are the top priority in risk ,ranking given by the investors with a mean score of 4.91 followed by Mutual Funds which has a risky impact on investors with second rank and a mean score of 4.13 and at third position or rank we have Real estate there is also risk involved with a mean score of 3.11 and at fourth place we have Insurance it is also risky affair in investment options the mean score is 3.05 and at fifth place we have Bonds where it has mean score of 2.03 and sixth place we have gold and E-gold with a mean score of 2.02 and at seventh rank we have two investment options they are Postal office , National service schemes and provisional provident fund with a mean score of 1.17 and for eight ranks we have Fixed Deposits with a mean score of 1.15.

LIQUIDITY: The concept of liquidity is easy convertibility of investment into cash having an amount of price discount, in the option of investment Mutual funds stands the best option, further followed by shares and fixed deposits with a mean score of 4.11 and Rank 3 states for Bonds with a mean score of 3.10 and fourth rank stands with PO/NSC with a mean score of 3.08 and Fifth rank is for PPF with a mean score of 2.08 and gold and e-gold is ranked with six with a mean score of 2.06 and seventh rank is given to Insurance with a mean score of 2.01 and least preference is given to Real estate with a mean score of 1.18.

TAX SAVINGS: Tax savings are one of the investment options which give the investors a tax benefit in their investments. In this the first is Insurance with first rank with a mean score of 4.84 and followed by Fixed deposits with a mean score of 4.18 and the third rank is for two investment option they are PPF and Real estate which gives them a mean score

of 4.12 and fourth rank stands for PO/NSC with a mean score of 4.09 and fifth rank is with Mutual funds and Bonds with a mean score of 3.10 and Sixth rank is with Shares with a mean score of 2.07 and Seventh Rank is with Gold and e-Gold with a mean score of 1.19.

Procedural Understanding

Procedural Understand is nothing but the clarity while we are investing in the procedure, when we have studied their scores and mean scores. We can see that PPF stands first with a mean score of 4.89 and second rank is for FD their mean score is 4.83 and third rank is for PO/NSC where their mean score is 4.12 and fourth the rank stands for Gold and e-gold with a mean score of 3.15 and fifth is Bonds with a mean score of 3.09 and in Sixth rank we have two investment options they are Insurance and Real estate with a mean score of 2.06 and at seventh rank we have Mutual Funds with a mean score of 2.05 and at Eight rank we have least preferred investment option of Shares with a mean score of 1.19.

At the end the ranking can be classified on under three major categories they are as Highest Moderate and Lowest, where in highest we have top three investment options in moderate we have next three Investment options and Lowest we have last three ranks investment options for which table is drawn below.

Table -7: Classification of the investment options

PARAMETER	HIGHEST	MODERATE	LOWEST
			PO/ NSC, fixed
Return	Shares, real estate and gold/ e-gold	Mutual Funds, bonds and PPF	deposits and Insurance
Risk	Shares, Mutual Funds, and real estate	Insurance, bonds and gold/e-gold	PPF, PO/ NSC and fixed deposits
Liquidity	Mutual Funds, shares, fixed deposits and bonds	PO/ NSC, PPF and gold/e-gold	Insurance and real estate
Tax Saving	Insurance, fixed deposits, PPF and real estate	PO/ NSC, bonds, Mutual Funds and shares	Gold/ e-gold
Procedural Understanding	PPF, fixed deposits and PO/ NSC	Gold/e-gold, bonds and insurance and real estate	Mutual Funds and shares

Conclusion

In the Indian Mutual Fund industry, most of the Mutual Fund plans were inefficient. However, in its category analysis of Growth, Income, Balance and ELSS, the situation is much better and nearly half of each category has worked well. The load fee and expense ratio are the main cause of inefficiency in investment funds. For inefficient patterns, there are patterns of effectiveness respectively between pairs in specific gravity that follow these patterns and can achieve efficiency. Therefore, for inefficient patterns, target values or there are virtual inputs to achieve performance. The target values which we have gained exhibits expense ratio and also the load fee must be reduced for achieving greater efficiency.

References

1. Indian Central Banking Enquiry Committee, Minority Report, 1931.
2. Babu G Ramesh. Financial Services in India, Concept Publishing Company, 2005.
3. DadabhoyBakhtiar K. Barons of Banking, Random House India, 2013, 126-131.
4. Satya Sekhar GV. The Indian Mutual Fund Industry: A Comparative Analysis of Public vs Private Sector Performance, Palgrave Macmillan, 2014, 18.
5. Batra GC, Dangwal RC. Financial Services: New Innovation, Deep & Deep Publications Pvt. Ltd. New Delhi, 2005
6. SEBI Handbook, various years.
7. RBI Annual Report, various years.
8. The Business Line, July 17, 2006.
9. The Economic Times, May 7, 2008.
10. The Business Standard, May 27, 2009.
11. www.moneycontrol.com, Oct 09, 2012.
12. www.valueresearchonline.com, Nov.18, 2013.
13. The Economic Times, May 28, 2014.
14. The Economic Times, September 8, 2014.
15. The Economic Times, November 28, 2014.

A Study on Human Resource Development With Reference To APSRTC

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KANNAMALLA SUDHA **

Abstract

In contrast to the earlier practices an attempt has been made by the researcher to trace out the impact of HRD practices on employees. This work is not only an in depth study of HRD practices in APSRTC; the study also presents an overview of Road transport sector in India. With the advent of globalization, transport sectors are confronted with challenges in improving productivity by successfully meeting the intense level of competition from its counterparts.

Keywords: HRD practices, Employees, Road transport, Globalization, Productivity.

Introduction

Certain societies have emerged with great potential for growth as they are endowed with people rich in drive, vision, ingenuity, creativity and the spirit of enterprise. If, on the other hand, some countries remained underdeveloped, it is largely because the people are underdeveloped, having had no opportunity to realize their maximum potentialities. Thus, lack of human resources of right quality is largely responsible for the backwardness of the otherwise rich nations. The public Enterprise Boards by and large, do not often play the strategic and dynamic role of entrepreneurship, innovation and long-range planning. Their roles are mostly confined to maximising performance through the existing resources and carry out the government mandates, which could also relate to day -to- day operations. The public sector being enormous in size, the major task faced by any manager is to keep the work force motivated and to deal with their personal problems. Every public enterprise must involve a comprehensive system of management development for the employees, so that the personal problems are not treated as individual fragments requiring adhoc solutions, but as parts of a total system that intends to bring out the best.

An employee as a member of the managerial team, capable of initiation and good performance. Every public enterprise should establish a competently manned personnel department, charged with the task of evolving and implementing a comprehensive system of management development. Public enterprises in developing countries should invite management expertise to help them evolve such systems.

Human Resource Management

Human Resource Management (HRM) is described as interims of four-folded typology of employee influence, human resource flow, reward systems and work systems. Some have classified HRM into four areas of acquisition, maintenance, motivation, and development of human resources.

Human Resource (HR) departments are like computers made up of used parts while the individual parts may work, they don't work well together. At the point when more is anticipated from HR, a higher nature of HR proficient must be found. Organizations

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require individuals, who know the business, comprehend the hypothesis and routine with regards to HR, can deal with the HR, can oversee culture and get change going, and have individual validity.

Human Resource Management uses HRD spirit and philosophy in managing matters concerning human beings in the organization (from recruitment to retirement) execute, implement and manage the HR systems, give feedback to, and use feedback given by HRD.

Barring a few empirical studies on Human Resource Management in transport undertakings in general and the APSRTC in particular, are conspicuous by their absence. So far, not a single empirical study on Human Resource Management has been conducted in the APSRTC. Therefore, the APSRTC in an unexplored area in terms of research done in the field of Human Resource Management. In the wake of liberalised industrial policy of the state government, the Public Sector Undertakings (PSU's) including the APSRTC face many challenges. Liberalisation has opened doors to private parties. The involvement of private operators in the bus- fare scheme in Andhra Pradesh is competing with APSRTC. In order to respond to those challenges, the APSRTC must make necessary adjustments in Human Resource Management policies and practices. The present study is an attempt in this direction.

Objectives of the Study

1. To study the conceptual framework of HRM practices in APSRTC.
2. To study the views of employees of APSRTC with respect to HRD climate.

Research Methodology

1. The methodology adopted in collecting the data, selection of the sample, analysis of data and interpretation of data is presented below:
2. For the purpose of collecting primary data from the Workers, Trade Union office bearers and executives of APSRTC, schedules have been designed and administered to the respondents.
3. The formation collected from the Executives during the office hours with prior permission of the officers concerned, by way of personal interview. The information is collected from Workers, Trade Union Leaders from their representative office premises through personal interviews.

TO STUDY THE VIEWS OF EMPLOYEES OF APSRTC WITH RESPECT TO HRD CLIMATE

Regression Analysis on Observed Survey

Regression helps in quantifying influence of independent variables on dependent variable. If there is one single independent variable, it is a 'Simple Regression' and if there is more than one, it is Multiple Regression.

The dependents and independent variables should be scaled variables (interval or ratio data) but not categorical data. The analysis produces beta (coefficients) values, with which one can predict dependent variable. The betas are useful for identification of the greatly influencing variable and also for comparison of one variable with the other.

Regression Model for HRD Climate Satisfaction and Allowances, Benefits And Services Satisfaction

The regression model here explains about dependent and independent variable whereas the dependent variable is HRD climate satisfaction and the independent variable is Satisfaction with allowances, Benefits and Services Satisfaction.

The below model summary of Multiple regression model explains R-square value, R value and Adjusted R value and also standard deviation, starting with R it is the correlation of predicted and observed values of the dependant variable. -1 to 1 is the limit values of R range. The positive and the negative are the direction of relationships which is also the sign of R. When we do have larger value it shows the stronger relationship and when it has smaller value it shows weaker value.

Hypothesis

H0: There is no Influence of Satisfaction with allowances, Benefits and Services Satisfaction on HRD climate.

H1: There is an Influence of Satisfaction with allowances, Benefits and Services Satisfaction on HRD climate.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.663 ^a	.439	.433	7.141

a. Predictors: (Constant), Satisfaction with allowances, Benefits and Services Satisfaction

b. Dependent Variable: HRD Climate Satisfaction.

The above relations shows that R value which is 0.663 which is the correlation value of observed and predictors value, in the predictor value we are taking into consideration the Satisfaction with allowances, Benefits and Services Satisfaction and it is in between -1 to 1 so it shows that the correlation is in margin it is neither high nor low in range. R square value i.e. coefficient determination is 0.439 or 43.9 percent of variability in dependent variable is explained by independent variables and the adjusted R square is .433 or 43.3 percent which explains the correctness of the data.

To further explain this result of HRD Climate Satisfaction was influenced by some factors or constant out of which 43.9 was from Satisfaction with allowances and Benefits and Services Satisfaction.

ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	11813.238	2	3937.746	77.219	.000 ^b
Residual	15094.429	296	50.995		
Total	26907.667	299			

a. Dependent Variable: HRD Climate Satisfaction

b. Predictors: (Constant), Satisfaction with allowances, Benefits and Services Satisfaction

The above table shows the F-ratio in the ANOVA table measures the overall fitness of the regression model. The analysis shows a significant variation in dependent variable by independent variables. Hence, the null hypothesis stands rejected and alternative hypothesis is accepted, there is an Influence of Satisfaction with allowances, Benefits and Services Satisfaction on HRD climate further analysis is done by assigning coefficients to independent variables.

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.292	2.553		3.640	.000
	Benefits and Services Satisfaction	.499	.074	.387	6.721	.000
	Satisfaction with allowances	.401	.109	.209	3.676	.000

5% Level of significance, Dependent Variable: HRD Climate Satisfaction

The above table shows that the beta weights and statistical significance. The magnitude of beta values of independent variables is an indicator of their importance in dependent variable. All independent variables shows a significance affect in HRD climate satisfaction as Sig. (p) value is less than 0.05 and the calculated 't' values are more than the table value at 0.05 level irrespective of signs. For one unit change in Benefits and Services Satisfaction there is 0.499 times change in HRD Climate. A unit change in Satisfaction with allowances there is 0.401 times change in HRD climate. The standard coefficient Beta is 0.387 for Benefits and Services Satisfaction the standard coefficients beta is 0.209 for Satisfaction with allowances.

Regression Model for HRD Climate Satisfaction and Recruitment and Selection Satisfaction

The regression model here explains about dependent and independent variable where as the dependent variable is HRD climate satisfaction and the independent variable is recruitment and selection satisfaction.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.200	0.04	0.037	9.31

a. Predictors: (Constant), Recruitment and Selection Satisfaction

The above relations shows that R value which is 0.200 which is the correlation value of observed and predictors value, in the predictor value we are taking into consideration the Recruitment and Selection Satisfaction and it is in between -1 to 1 so it shows that the correlation is low in range. R square value i.e. coefficient determination is 0.04 or 4 percent of variability in dependent variable is explained by independent variables and the adjusted R square is 0.037 or 3.7 percent which explains the correctness of the data

To further explain this result of HRD Climate Satisfaction was influenced by some factors or constant out of which 4% was from Recruitment and Selection Satisfaction.

Hypothesis:

H0: There is no Influence of Recruitment and selection Satisfaction on HRD climate

H1: There is a Influence of Recruitment and selection Satisfaction on HRD climate

ANOVA ^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	1077.21	1	1077.21	12.427	.000 ^b
Residual	25830.5	298	86.679		
Total	26907.7	299			

a. Dependent Variable: HRD Climate Satisfaction

b. Predictors: (Constant), Recruitment and Selection Satisfaction

The above table shows the F-ratio in the ANOVA table measures the overall fitness of the regression model. The analysis shows a significant variation in dependent variable by independent variables. Hence, the null hypothesis stands rejected and alternative hypothesis is accepted, there is an Influence of Recruitment and selection Satisfaction on HRD climate, further analysis is done by assigning coefficients to independent variables.

Coefficients ^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	37.412	2.320		16.128	.000
	Recruitment and Selection Satisfaction	.711	.202	.200	3.525	.000

5% Level of significance, a. Dependent Variable: HRD Climate Satisfaction

The above table shows that the beta weights and statistical significance. The magnitude of beta values of independent variables is an indicator of their importance in dependent variable. The independent variables which is recruitment and selection satisfaction shows a significance affect in HRD climate satisfaction as Sig. (p) value is less than 0.05 and the calculated 't' values are more than the table value at 0.05 level irrespective of signs. For one unit change in recruitment and selection satisfaction there is 0.711 times change in HRD Climate. The standard coefficient Beta is 0.200 for Recruitment and selection.

Regression Model for HRD Climate and Satisfaction with Performance Appraisal

The regression model here explains about dependent and independent variable where as the dependent variable is HRD climate satisfaction and the independent variable is satisfaction with performance appraisal.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.185	0.034	0.031	9.338

a. Predictors: (Constant), Satisfaction with Performance Appraisal

The above relations shows that R value which is 0.185 which is the correlation value of observed and predictors value, in the predictor value we are taking into consideration the satisfaction with performance appraisal and it is in between -1 to 1 so it shows that the correlation is low in range. R square value i.e. coefficient determination is 0.034 or 3.4 percent of variability in dependent variable is explained by independent variables and the adjusted R square is 0.031 or 3.1 percent which explains the correctness of the data. To further explain this result of HRD Climate Satisfaction was influenced by some factors or constant out of which 3.4% was from satisfaction with performance appraisal.

Hypothesis

H0: Satisfaction with performance appraisal has an no impact on HRD climate

H1: Satisfaction with performance appraisal has an impact on HRD climate

ANOVA ^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	923.114	1	923.114	10.587	.001
Residual	25984.6	298	87.196		
Total	26907.7	299			

a. Dependent Variable: HRD Climate Satisfaction

b. Predictors: (Constant), Satisfaction with Performance Appraisal

The above table shows the F-ratio in the ANOVA table measures the overall fitness of the regression model. The analysis shows a significant variation in dependent variable by independent variables. Hence, the null hypothesis stands rejected and alternative hypothesis is accepted, Satisfaction with performance appraisal has an impact on HRD climate, further analysis is done by assigning coefficients to independent variables.

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	38.800	2.089		18.573	.000
	Satisfaction with Performance Appraisal	.565	.174	.185	3.254	.001

5% Level of significance, a. Dependent Variable: HRD Climate Satisfaction

The above table shows that the beta weights and statistical significance. The magnitude of beta values of independent variables is an indicator of their importance in dependent variable. The independent variables which is Satisfaction with Performance Appraisal shows a significance affect in HRD climate satisfaction as Sig. (p) value is less than 0.05 and the calculated 't' values are more than the table value at 0.05 level irrespective of signs. For one unit change in Satisfaction with Performance Appraisal there is 0.565 times change in HRD Climate. The standard coefficient Beta is 0.185 for Satisfaction with Performance Appraisal.

Regression Model for HRD Climate Satisfaction and Satisfaction with Wagesalary, Incentives and Welfare

The regression model here explains about dependent and independent variable where as the dependent variable is HRD climate satisfaction and the independent variable are with wage/salary, incentives and welfare.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.507	0.257	0.254	8.192

a. Predictors: (Constant), WageSalary, Incentives and Welfare

The above relations shows that R value which is 0.507 which is the correlation value of observed and predictors value, in the predictor value we are taking into consideration the satisfaction with performance appraisal and it is in between -1 to 1 so it shows that the correlation is low in range. R square value i.e. coefficient determination is 0.257 or 25.7 percent of variability in dependent variable is explained by independent variables and the adjusted R square is 0.254 or 25.4 percent which explains the correctness of the data. To further explain this result of HRD Climate Satisfaction was influenced by some factors or constant out of which 25.7% was from satisfaction with performance appraisal.

Hypothesis

H0: satisfaction with wagesalary, incentives and welfare has an no impact on HRD climate

H1: satisfaction with wagesalary, incentives and welfare has an impact on HRD climate

ANOVA ^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	6908.86	1	6908.86	102.948	.000 ^b
Residual	19998.8	298	67.11		
Total	26907.7	299			

a. Dependent Variable: HRD Climate Satisfaction

b. Predictors: (Constant), Wage, Salary, Incentives and Welfare

The above table shows the F-ratio in the ANOVA table measures the overall fitness of the regression model. The analysis shows a significant variation in dependent variable by independent variables. Hence, the null hypothesis stands rejected and alternative hypothesis is accepted satisfaction with wagesalary, incentives and welfare has an impact on HRD climate, further analysis is done by assigning coefficients to independent variables.

Coefficients ^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	22.471	2.306		9.746	.000
	Wage, Salary, Incentives and Welfare	1.674	.165	.507	10.146	.000

5% Level of significance, a. Dependent Variable: HRD Climate Satisfaction

The above table shows that the beta weights and statistical significance. The magnitude of beta values of independent variables is an indicator of their importance in dependent variable. The independent variables which is satisfaction with wagesalary, incentives and welfare shows a significance affect in HRD climate satisfaction as Sig. (p) value is less than 0.05 and the calculated 't' values are more than the table value at 0.05 level irrespective of signs. For one unit change in satisfaction with wagesalary, incentives and welfare there is 1.674 times change in HRD Climate. The standard coefficient Beta is 0.507 for satisfaction with wagesalary, incentives and welfare.

Multiple Regression Model for HRD Climate and Satisfaction with Performance Appraisal, Wage, Salary, Incentives and Welfare and Recruitment and Selection Satisfaction

The regression model here explains about dependent and independent variable where as the dependent variable is HRD climate satisfaction and the independent variable is with satisfaction with performance appraisal ,wage/salary, incentives and welfare and recruitment and selection satisfaction

Model Summary

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	.515	0.265	0.258		8.173

Predictors: (Constant), Satisfaction with Performance Appraisal, WageSalary, Incentives and Welfare, Recruitment and Selection Satisfaction

b. Dependent Variable: HRD Climate Satisfaction

The above relations shows that R value which is 0.515 which is the correlation value of observed and predictors value, in the predictor value we are taking into consideration wagesalary, incentives and welfare and recruitment and selection satisfaction and it is in between -1 to 1 so it shows that the correlation is in margin it is neither high nor low in range.R square value i.e. coefficient determination is 0.265or 26.5 percent of variability in dependent variable is explained by independent variables and the adjusted R square is 0.258or 25.8 percent which explains the correctness of the data

Hypothesis

H0: There is no influence of Satisfaction with Performance Appraisal, wage salary, incentives and welfare and recruitment and selection satisfaction on HRD climate

H1: There is an influence of Satisfaction with Performance Appraisal wage salary, incentives and welfare and recruitment and selection satisfaction on HRD climate

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	7135.31	3	2378.44	35.606	.000 ^b
Residual	19772.4	296	66.799		
Total	26907.7	299			

a. Dependent Variable: HRD Climate Satisfaction

b. Predictors: (Constant), Satisfaction with Performance Appraisal, WageSalary, Incentives and Welfare, Recruitment and Selection Satisfaction

The above table shows the F-ratio in the ANOVA table measures the overall fitness of the regression model. The analysis shows a significant variation in dependent variable by independent variables. And we can observe that the significance value is less than 0.05.

Hence, the null hypothesis stands rejected and alternative hypothesis is accepted There is an influence of Satisfaction with Performance Appraisal, wage salary, incentives and welfare satisfaction and recruitment and selection satisfaction on HRD climate further analysis is done by assigning coefficients to independent variables.

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	19.614	2.814		6.971	.000
	WageSalary, Incentives and Welfare	1.598	.172	.484	9.311	.000
	Recruitment and Selection Satisfaction	.109	.208	.031	.526	.599
	Satisfaction with Performance Appraisal	.231	.175	.076	1.316	.189

5% Level of significance,

a. Dependent Variable: HRD Climate Satisfaction.

The above table shows that the beta weights and statistical significance. The magnitude of beta values of independent variables is an indicator of their importance in dependent variable. All independent variables except WageSalary, Incentives and Welfare shows insignificance affect in HRD climate satisfaction as Sig. (p) value is more than 0.05 and the calculated 't' values for WageSalary, Incentives and Welfare satisfaction is more than the significance value which is 9.311. The calculated 't' values for Recruitment and Selection Satisfaction is less than the significance value which is 0.526. and the calculated 't' values for Satisfaction with Performance Appraisal more than the significance value which is 1.316. For one unit change in WageSalary, Incentives and Welfare satisfaction there is 1.598 times change in HRD Climate. A unit change in Recruitment and Selection Satisfaction there is 0.109 times change in HRD climate. A unit change in Satisfaction with Performance Appraisal there is 0.231 times change in HRD climate The standard coefficient Beta is 0.484 for WageSalary, Incentives and Welfare satisfaction and the standard coefficients beta is 0.031 for Recruitment and Selection Satisfaction and the standard coefficient Beta is 0.076 for Satisfaction with Performance Appraisal.

Conclusion

The success will largely depend on how these challenges are matched with the utilization of human resources which is at our disposal. It has been very unfortunate that the APSRTC has limited its human resource developmental practices for some cadres at apex level only without taking organizational climate of various zones into account while training their managerial personnel. But the need of the hour is to put more emphasis on all the HRD practices at managerial level in the back ground of their level of climate.

REFERENCES

1. AtulParvatiyar, Jagadish N, Sheth. Consumer Relationship Management “Emerging Practice, Process and Discipline Journal of Economic and social Research. 2001; 3(2):1-34.
2. Bery LL. Fall Relationship Marketing of ServicesGrowing Interest. Emerging Perspectives Journal of the Academy of Marketing Science. 1995, 236-245.
3. Measures Appropriate to measure Relationship satisfaction? A. Parvatiyar& J.N. Sheth (Eds.) Contemporary Knowledge of Relationship Marketing. Atlanta, GA: Emory University Centre for Relationship Marketing. 258-275.
4. Bultema P. Getting the big picture on operational CRM, Proceedings of DCI Customer Relationship Management Conference, Boston, MA. 2000, 27-29.
5. Creighton S. Partnering for success to the e-business world, in proceedings of DCI Customer Relationship Management Conference, Boston, MA. 2000, 27-29.
6. Doyle SX, Roth GT. Winter Selling and Sales Management in Action: The Use of Insight Coaching to Improve Relationship Selling Journal of Personal Selling & Sales management. 1992, 59-64.
7. Dwyer FR, Schurr PH, Oh S. Developing Buyer-seller Relationships Journal of Marketing. 1987; 51:11-27.
8. Eckerson W, Watson H. Harnessing Customer Information for Strategic Advantage: Technical Challenges and Business Solutions, Special Report, The Data Warehousing Institute, Chatsworth, CA. 2000.
9. Fickel L. Know your customer CIO Magazine. 1999; 12(21):62-72. 10. Ganesan S. Determination of Long –Term Orientation in Buyer Seller Relationships. Journal of Marketing. 1994; 58:1-19.

Impact of ICT on Education System

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Abstract

For a long time, we have criticising our education system for lack of effective learning techniques or skill-based learning. Technology based education seems one step towards revolutionising education for the better. Technology and education are the best combination if used together with a right reason and vision. We are moving towards the digitalization. Digitalization offers flexibility in education system as it makes education more interesting as compare to earlier. Through digitalization our education system reaches to its zenith but it has many drawbacks. Education is a never-ending continuous process involves research, experiments and innovations. Innovation in education is possible only through technology. In this era, education depends upon technology and technology. Computer is the first innovation which offers advancement in the field of education. Along with computer comes the age of internet, a new source of information and communication.

Keywords: Digitalization, Education, Technology, Students and information.

Introduction

Education is the process that modifies the behaviour of individual. Education is a lifelong process. We get education from formal and informal ways or our life experiences. Education must relate to us and reality. Toddlers these days have an early introduction to technology when they start using their parent's smart phones, tablets, laptops even before they learn to speak. Therefore, imparting technology-based education from their early stage is definitely a positive idea. A typical classroom was once characterised by students siting through teacher lectures. Now it is changing gradually. Recently more than 12000 schools across 560 districts in India have adopted smart classes. This means that classrooms are adopting technology by having digital learning tools, such as computer, printers, projectors etc. Both teacher and student are using technology to Enhance their teaching and learning skills respectively. Technology helps students to learn by themselves. 'Eyes work more than ears' is the mantra behind the widespread usage of these tools. Technology gives students immediate access to abundance of quality information which leads to learning at a much quicker rate than before.

Objectives of Educational Technology

1. At the macro-level in view of the board educational goals.

- To improve the techniques used for the teaching in the classroom.
- To introduce science and art in curriculum for the development of the student.
- To recognise the cognitive resources.
- For the good result of teaching -learning process by using technology

2. At the micro level in view of the specific classroom teaching

- To recognise the interests, talent and skills of the students
- For the improvement of the teaching-learning process, we should take the feedback from the students as well as teachers

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- To evaluate the behaviours and the achievement of the student.

Use of Technology in Education

Use of graphics simplifies the concepts of difficult subjects like Maths, Biology, Chemistry, and Physics. It increases the student's engagement and motivation and accelerates learning. Even for toddlers, digital learning/teaching involves the use of all their senses while learning in a very playful manner.

With technology, educators, students and parents have variety of learning of learning tools at their fingertips. Here are some ways in which technology has improved education over a span of time. Technology supports learning 24x7 and builds 21st century skills. It expands course offerings and learning materials. Teachers can now communicate with others across the world, meet the shortcomings of their works, thus proving their students with the best.

Technology has improved the writing and learning skills. Computers have word processor application which helps the student to auto correct spelling and grammar in the sentence. Many students are using English teaching software and mobile application like BUSUU.it helps the student to learn different language online. Even teachers encourage their students to create their own blogs which help students to express themselves.

In India more and more companies are coming forward to provide technology-based education with customised settings. To name a few are like NIIT, IL&FS, HCL, Infosystems, Tata Interactive Systems etc. even parents want the best for their child and not averse to paying a little extra. They see value in these initiatives by schools to modernise the way teaching is imparted today. Technology in education preparing the students for the future or more precisely 'next generation'. Technology gives the new wings to the dreams of the students which help to get success. Indian government is not ignorant to the development and so has come up with National Mission on Education through Information and Communication Technology. It aims to eliminate digital illiteracy by distributing the Aakash tablets to students across Indian at very low rates. In India, illiteracy is one of the biggest problems. Lacks of easy access, lack of teachers, poverty, and lack of infrastructure are the common reasons which are holding back the progress in rural education. However, with the use of technology, mass education can be provided and the prevailing situation can be changed. Classroom course at one place can be record in real time and can be used for teaching the students who cannot attend these classes. This could be good option as rural people are more attracted to technology and drop-out rate could be reduced. Some organisation like Aziz Premji Foundation, run by Wipro group has been actively working towards this issue. Schools in the states like Andhra Pradesh, Assam, Karnataka, and Tamil Nadu etc have received computer assisted education through collective efforts by NIIT and Government.

Digitalization in Education

Digitalization is the integration of digital technologies into everyday life by the digitalization of everything that can be digitized. If we talk about earlier education system, it depends upon the textbooks and teachers. Students were bound to follow the textbooks and lecture method by the teachers. Indian education system was focus on the nature of the world, nature of reality, ethics, values and concept of god and moksha. Westernization in the Indian education came during the British era. New involvement in the education comes with the Digitalization.

To improve the quality of education new techniques have been introducing. Starting with the computers in the education give new ways to express the ideas. Then comes the internet, the life saver of any student. "Google baba" called by the students. Internet in Education has been incredibly useful as it facilitates both information and communication. Internet is the store house of the information where one can get answers of all his questions. It provides students as well as teachers the detailed information about any topic. Wikipedia and encyclopaedia are the most common websites among the students. These days students depend upon the google for the studies. Even though there are dictionaries but they go to google to find new words and their meanings. Internet provides the online mock exam for some Government examination or the others. Even Previous years question papers are available in the internet. Online quiz questions are also available. Now days, students are mostly depending upon the google. They find all the solution of the intext questions and numerical-based questions. There are many people who upload the teaching videos of any topic for students. Not only individual but some institution in the world hosts their own collection of videos in the YouTube.

Youtube Channels for Education

1. YouTube EDU was launched in 2009.
2. TED and TEDX
3. Edutopia is run by the George Lucas Foundation
4. Science Channel about outer space, new technology, earth science and more
5. NASA Television
6. The Video Math Tutor
7. Mind your Mind
8. BookTv

Students find themselves freer and more comfortable in learning through YouTube Videos. It saves the time of students as just need to switch to the websites or channel to learn a subject-matters rather than spending time on long-hour studies. E-books are available in the internet too. If you can't buy the costly books then go for e-book. Many PPTs are there which are upload by both teacher as well as student for the others.

National Policy in ICT

Many countries are making strategies and policy for the development of ICT. India too is the part of this development. Indian Government made many policies for the developing of ICT. There are many trends in ICT such as

1. Increase in affordable broadband
2. Demand for data security increases
3. Increase in the use of free and open software as a platform
4. Reduction in the demand and costs for ICT staffs

Digital India is a campaign launched by Prime Minister Narendra Modi on 1st July 2015. It aims is to increasing internet connectivity or by making India digitally empowered in the field of technology.

SWAYAM programme of Ministry of Human Resource Development where professors and faculties of centrally funded institutions will offer online course to citizens of India.

Importance of Technology In Education

1. IMPROVING LEARNING EXPERIENCE

Technology improves the learning experiences for students. It improves the learning process and gives students a quality of education.

2. METHODS OF TEACHING

It helps teachers to teach in different technique in the class. The teacher will use audio-visual method to make topic more interesting.

3. Technology helps students to improve their result

When the teacher used technology in classroom, it will make students more attentive. Students will understand the topic with rotting it.

4. Students can learn at their own pace

Traditionally, students depend on the teacher and books for the understanding of concept. But now they can go through the internet for the understanding.

5. Online courses for the Students

There are different courses available for the students online. Without attending the specific class one can attend online courses as per their time. Courses such as English Speaking, IAS, PCS and other foreign language etc.

6. Collaboration

A teacher can create a safe online environment where the students can discuss, ask question and help each other. Teacher collaborates with other experts for the students and can organise an expert lecture.

Conclusion

ICT has no doubted changed our education system. It is combined of classroom learning and online learning. Digitalization save the time of students as well as teachers, schools and Colleges are moving toward the technology for the betterment of the student. Digital education promotes the minimizing infrastructure and maximizing outcomes. Now, neither teacher are not depended upon the books for the teaching nor the students. ICT has given a way to improve quality of the education. According to survey, around 64 percent students used 3G-4G service as the primary means of connecting to internet. One-third students are accessing online videos for studies. Sixty percent of students used mobile phones for anytime research. Day by day improvement in the ICT will definitely give the new methods of teaching in education.

References

1. <https://www.entrepreneur.com/article/302680>
2. <http://www.opencolleges.edu.au/informed/features/197-educational-youtube-channels/#ixzz2kwAGp4td>
3. <https://elearningindustry.com/digitization-of-education-21st-century>

Need For Improvement in Software Processes in SME's

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Abstract- These days environment in the SMEs occupies a good number of development environments. The amount of GDP that is being generated from the SMEs constitutes to 50% and around 70% to the formal employees. This is the main reason why we can see improvement in the quality of products being generated from SMEs as there is quality process of process being involved while generating these products. However it has been found that while implementing the software processes they suffer lack of implementation. In this paper we show the results that aim in how we can improve the implementation of the software processes. To accomplish this, a systematic review protocol was performed. The use of this convention has permitted to distinguish the exertion with respect to the improvement in the software processes also; the fundamental constraints looked by SMEs. Also the paper gives an insight on the benefits that an organization will get while implementing the improved software processes.

Keywords – SMEs, GDP, improved software process, quality process, systematic review protocol.

1. Introduction

These days the IT sector of Small and Medium level Enterprises (SMEs) is considered to be an important part in the software development industry. The industry has grown and has become powerful in the recent times especially in last ten years. Thus it represents in being one of the biggest development activities in production of jobs. It has become necessary for the SMEs to improve their product's quality. One way to achieve this is by improving software processes used in the SMEs while developing a product. Although the problem faced by the SMEs is implementing the improved software processes, this is due to lack of hiring of the trained personnel who can define and also implement the right processes required for the organization. In this paper we mainly focus on characterizing the software development in the SMEs so as to achieve the improvised software processes thus achieving the organizational goals, for that reason systematic review was performed, which allows one to get all the data using formal research method [1][2][3][4].

The main aim of this paper is to demonstrate the highlights of the software development SMEs to recognize the necessities tended to towards the usage of an improved software process activity. The paper is organized as follows: In the Section 2, a concise description on software development SMEs is done, which is followed by Section 3 where brief

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summary on carrying out of systematic review, then in the Section 4, Models and Standards Used; Section 5, explains about Improved Process; Section 6 explains about Limitations.

2. SMEs

A huge organization begins to work as a little working group that can be considered as SME, thus it is important to have processes that are well defined. This is the motivation behind why SMEs has demonstrated a considerable measure of enthusiasm for Software Process Improvement (SPI). The expression "SME" is utilized to categories on how many number of people are working in the organizations. In this way, the categorizing of calling or terming an organization as SMEs changes as per the area or nation in which the SME is set up [1]. For instance, in India, Under section 7 of the Micro, Small and Medium Enterprises Development (MSMED) Act, 2006, the size of micro, small, and medium enterprises as the micro sector must employee up to 10 employees and the investment done on the plant and machineries must not exceed twenty-five-lakh rupees; Small Scale Industries can employee up to 50 employees and the investment done on it must be more than twenty-five-lakh rupees but less than five crore rupees and lastly for the Medium-sized enterprises can have employee up to 250 employees and investment wise need to be above five crore rupees and less than ten crore rupees. The Table 1 shows the detailed description on the research carried out [5] [6].

Table1: Categories of SMEs in India

SME Category	Number of People (Employees)	Investment (in Rs.)
Micro	Upto 10	Less than 25 Lakhs
Small	Upto 50	Between 25 Lakhs to 5 Crores
Medium	Upto 250	Between 5 Crores to 10 Crores

3. Systematic Review

To understand the portrayal of the IT sector SMEs' requirements for executing a SPI (Software Process Improvement), there is a need to carry out the systematic review, which is a technique that permits distinguishing, assessing and translating research as for a particular theme. The objective of utilizing a systematic review is to get significant data to a particular subject utilizing a formal technique [7]. The systematic review is divided into various phases:

1. Planning the research review
2. Conducting the research review
3. Reporting the research review

3.1 Planning the Research Review

This stage is centered on the systematic review to portray the SPI as per the kind of organization in which it is actualized; this permits to get data for the research being carried out. In this stage different research questions are being posed:

- What is the domain being used for the software development in SMEs?
- In the SMEs how many employees are working?
- What processes are used in an organization?
- Do the SME have any familiarity in executing a SPI activity?
- What issues have the SME faced while implementing the software process or software process improvement?

These questions permit to get data about SMEs' highlights and to distinguish the requirements of SMEs toward the usage of SPI. With the end goal to answers the recognized inquiries previously mentioned the accompanying watchwords were distinguished: SMEs, SPI, programming, process, association, necessities and programming enhancement.

3.2 Conducting the Research Review

The methodology for getting the essential investigations and the accumulation of important data was as per the following: first, the hunt string was select; at that point a chosen source was picked and each inquiry string was embraced by each pursuit motor source. When the outcomes were gotten, a rundown of important examinations was made. After, the consideration and avoidance criteria were connected to the rundown. At that point, each come about investigation was assessed top to bottom with the end goal to wipe out those examinations that were not sufficiently significant to the exploration objective; after, the essential investigations were recognized.

3.3 Reporting the Reporting Review

Subsequent to playing out the past strides there were acquired intriguing outcome as pursues:

- Models and additionally gauges: the recognizable proof of a rundown of the most utilized model or potentially benchmarks in the usage of SPI in SMEs.
- Improved forms: the recognizable proof of the most engaged procedures in the execution SPI by SMEs.
- Main restrictions: the recognizable proof of critical boundaries that SMEs should look in the usage of SPI activities.
- Needs: the distinguishing proof of the requirements that SMEs need to execute a SPI activity.
- Development recommendations: a rundown of proposition that has been advancement to help SMEs in the execution of SPI activities.
- Advantages: the distinguishing proof of the focal points that SMEs accomplish with the execution of SPI.

4. Models and Standards Used

There were distinguished an arrangement of models and guidelines most generally utilized by SMEs in the usage of SPI. At that point, models and benchmarks were grouped by their utilization as shown in Figure 1

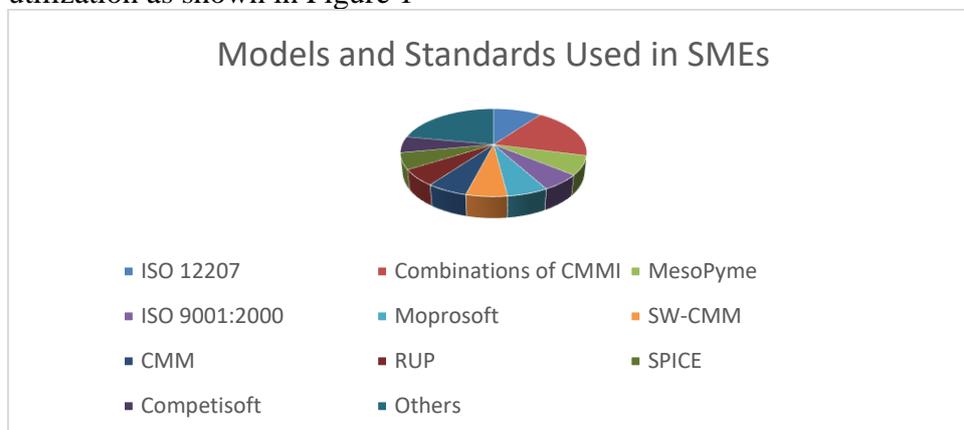


Figure 1: Models and Standards Used in SMEs

5. Improved Process

The following Figure 2 shows improved process used in SMEs

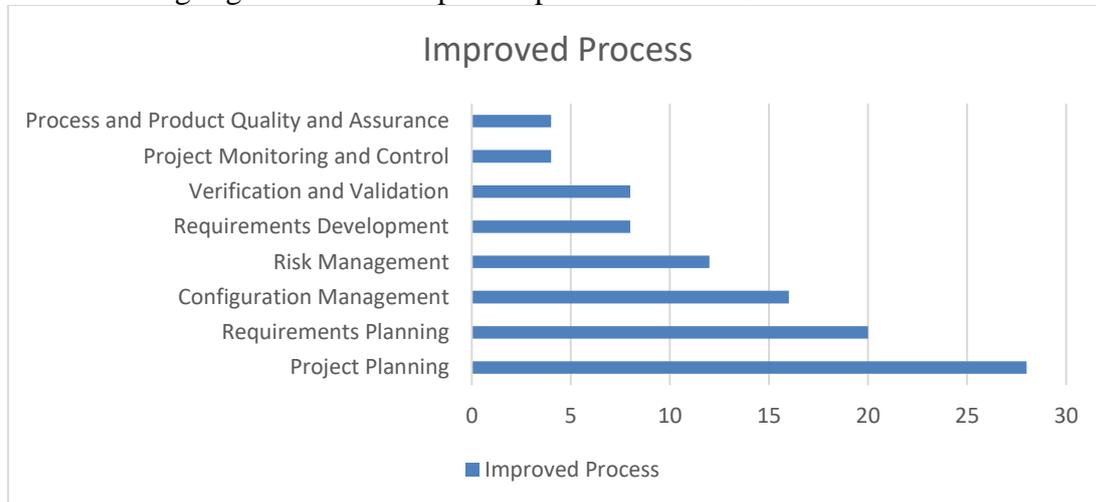


Figure 2: Improved Process

6. Limitations

To have a superior comprehension of the restrictions in the usage of SPI in SMEs recognized, the impediments have been arranged in 6 bunches as pursues:

a) Organization

- There is a high reliance with the clients.
- There is absence of information about the significance of the advancement process with quality of the product.

b) Financial Resources

- They don't have enough financial assets to contribute in process enhancement.
- They rely upon outer help to actualize a process enhancement.

c) Human Resources

- Lack of work force, on the grounds that the quantity of their representatives is generally insignificant.
- Lack of jobs definition, so representatives play out a few capacities.
- Employee's absence of learning about process enhancement techniques.

d) Processes

- They don't have characterized procedures, and after that the programming is creating as a specialty.
- To actualize and give SPI results speak to a high conservative venture.

e) Projects

- Work with little size undertakings, so the activities are created in a brief timeframe.
- To execute a procedure takes a long of time.
- They actualize forms since it is a client's necessity.

7. Conclusions

This paper demonstrated an arrangement of highlights dependent on 59 programming improvement SMEs from various nations. Additionally, it was exhibited the investigation of a few recommendations improvement to push SMEs to usage of procedures and the advantages related with the usage of enhancing SPI in SMEs. Besides, the models and additionally measures with a wide application in the SMEs are ISO 12207, RWSP, EPA,

MPS, Moprosoft, blends of CMMI with different models, rápido-Q, MesoPyMe, OWPL, IDEAL, ISO 9001:2000, TSP, Agile SPI, Competisoft, RUP, SPICE.

References

- [1] "Observatorio PYME." Mexico, DF, <http://www.observatoriopyme.org>, 2005.
- [2] "Dirección General de Política de la PYME", España, <http://www.ipyme.org/esES/Paginas/Home.aspx>.
- [3] Suzanne Garcia, Tom•s San Feliu, and Caroline Graettinger, "Critical Success Factors (CSF) in SPI Bibliography." Proceedings of the First International Research Workshop for Process Improvement in Small Settings, 2005, pp. 72-80.
- [4] Ángel Andrés Méndez Bazalar, "Mejora Del Proceso Software De Una Pequeña Empresa Desarrolladora De Software: Caso Competisoft- Perú - Lim.Omega, Primer Ciclo", 2012, pp.1-86.
- [5] Dr. Diego Martín de Andrés. "Seminario De Tecnologías De Información y Software (SETyS)." El Centro de Investigación en Matemáticas, A. C. - Unidad Zacatecas, November 29, 2012.
- [6] Scott, L., Jeffery, R., Carvalho, L., D'Ambra, J., and Rutherford, P., (2001). "Practical software process improvement - the IMPACT project." Conference Publications, pp 182-189.
- [7] Keele, Staffs, "Guidelines for performing Systematic Literature Reviews in Software Engineering.", 2007, pp.1-57.

Impact of Programmed Learning on the Achievement of Fifth Grade Lernerers in English

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Abstract

This paper is an attempt to study the impact of Programmed learning on the achievement of fifth grade learners in English. Programmed Learning is a highly individualized and systematic instructional strategy which is used to modify the behaviour of the students. The sample of sixty students studying in Govt. Primary School, Shergarh, and Kaithal was selected. Pre-test Post-test control group design was employed. T-test for Independent sample was applied to find out the significant difference between two groups before and after experimental treatment. Paired sample t-test was employed to compare the impact of experimental treatment on achievement scores of experimental group. The main findings of the study were i) there was a significant difference between scores of experimental group and control group after experimental treatment, ii) there was a positive impact on the students of Experimental Group which was taught through Programmed Learning Method. Thus, it can be concluded that from the results in English that Programmed learning activities had a positive impact on academic achievement of fifth grade learners.

Keywords: - Programmed Learning, Experimental treatment, Achievement.

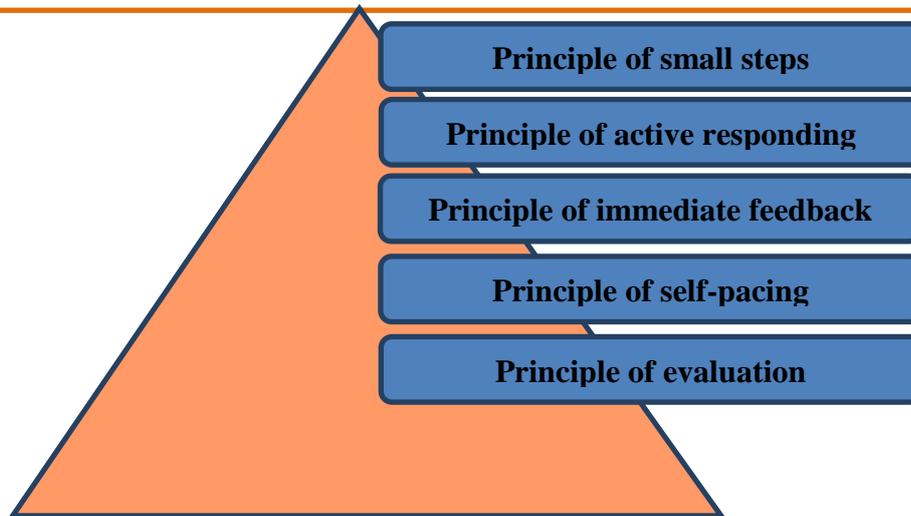
Introduction

Programmed is a technique of converting the live instrumental process into self-learning or auto-instructional readable material in the form of micro-sequences (the segments of subject matter) which the learners are required to read, make some responses, correct or wrong responses or confirm the right response and attain complete mastery of the concepts explained in the micro-sequences (N.S Mavi, 1984).

A major goal of Programmed learning is to adapt educational system according to individual differences. Programmed Learning signifies the level which each pupil attains when he/she is able to give at least 80 percent correct response on the criterion test that has been constructed based on instructional objectives with respect to that topic which each pupil is expected to achieve (Jhala, 2003). Teaching of English Grammar is a challenging task for a teacher. Now a day, different methods are used for teaching grammar. Various types of technology are used by the teacher to improve standard of education. Various types of innovative methods are used by the teacher like Programmed Learning, Computer Assisted Instruction, Self-Learning Modules, MOOC, Cooperative learning, etc. Programmed Learning is one of the effective innovations in the field of educational technology. This learning technique provides self-instructional materials to the learners in a systematic and organized manner. There are five basic principles of Programmed Learning:

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Styles of Programmed Learning

1. Linear or extrinsic programming
2. Branching or intrinsic programming
3. Mathematics programming

Justification of the Study

The main objective of education is to make a man self- dependent and self-reliant. Science and technology have touched almost all the aspects of human life and programmed instruction is an application of behavioural science and technology in the field of education. Programmed Instruction is based on behaviourist theories of learning which aims to shape behaviour into predetermined pattern by strengthening stimulus response band. Programmed Instruction's major contribution is in area of Stimulus control while working with frames. It is ensured that the students' response comes under appropriate stimulus control. Programmed Learning is related to students' own pace of learning. **Kumari (1983)** observed that there was a significant difference between the post-test scores of experimental group and control group. **Das (1986)** reported the effect of self-learning materials by comparing the pre-test and post-test scores of professional awareness scores of teachers taught by self-learning materials. In 1954, B.F Skinner, a professor of psychology from Harvard University attracted attention by his lecture, "The Science of Learning and Art of Teaching". He defended traditional American Psychology based on behaviour approach. He studied behaviour as well as organism behaviour control. According to him, learner behaviour is shaped by the programme and he followed the model: S.R.R (Stimulus-Response-Reinforcement) (**Mayerova & Rosicka, 2012**). In teaching learning process, various innovative methods are used by the teachers for higher achievement. To attain the objectives of teaching, various technological, mechanical and automation means are used by the teachers. Programmed Learning is an effective tool for betterment in learning.

Statement of the Problem

IMPACT OF PROGRAMMED LEARNING ON THE ACHIEVEMENT OF FIFTH GRADE LEARNERS IN ENGLISH

Operational Definitions of the Key Terms Used

Impact

Oxford Dictionary defines impact as the action of one object coming forcibly into contact with another or a marked effect or influence of one object on another.

Business dictionary defines impact as the tangible and intangible effects (consequences) of one thing or entity's action or influence upon another.

British English Dictionary defines impact as a powerful effect that something, especially something new, has on a situation or person. For the present study, improvement of the students in the achievement through Programmed Learning is considered as “**impact**”.

Programmed Learning: “Programmed Learning is a method of giving individualized instruction, in which the student is active and proceeds at his own pace and is provided with immediate knowledge of results. The teacher is not physically present. The programme, while developing programmed material, has to follow the laws of behaviour and validate his strategy in terms of students learning (**Gulati & Gulati, 1976**).

For the purpose of the present study, the investigator used Programmed Learning as each pupil of fifth grade work independently at his or her own abilities or pace to learn study materials provided to him or her.

Achievement

Achievement encompasses student's ability and performance. Achievement means something accomplished successfully, especially by means of exertion, skill, practice or perseverance (The American Heritage Dictionary, 2009).

For the present study, the achievement in English means scores obtained by the students studying in Fifth class in Achievement Test in English developed by the investigator herself.

Objectives of the Study

1. To develop and Standardize Unit-test to measure the achievement of fifth grade learners in English.
2. To develop Programmed Learning material (frames) for fifth grade learners in English.
3. To study the effect of Programmed Learning in English of fifth grade learners.
4. To study the difference in achievement in English through Conventional Teaching and Learning through Individually Prescribed Instruction of fifth grade learners at post stage.

Hypotheses of the Study

1. There exists no significant difference on the achievement of Experimental Group and Control Group on the selected concepts of Grammar at Pre-Stage.
2. There exists no significant impact of Programmed Learning in pre & post-test scores in English of fifth grade learners.
3. There exists no significant difference in achievement in English through Programmed Learning and Conventional Method of Teaching of fifth grade learners at post stage.

Delimitations of the Study

1. The study was confined to fifth grade learners studying in Govt. Primary School, Shergarh of Kaithal district affiliated to B.S.E.H Board, Bhiwani only.
2. The study was confined to only sixty students of Fifth Grade.

3. The study was confined to only four units of English Grammar i.e. Noun, Pronoun, Adjective and Degree of comparison.

Design and Sample of the Study

The present study was experimental in nature. It was conducted on the students of fifth grade. The researcher selected sixty students from Govt. Primary School, Shergarh, and Kaithal purposively. In order to equalize the groups in the form of Experimental and Control Group, General Mental Ability Test by Srivastav and Saxena was administered on the students. After equalizing the groups, pre-test was conducted on the fifth grade learners. This Criterion Reference test was prepared by the researcher herself. Treatment was given to the students. Experimental Group was given treatment through Programmed Learning material and Control Group was given the treatment through Conventional Method of teaching. The research design included three stages viz. pre-test, experimental treatment and posttest.

Variables under Study

1. Independent variables:
 - Method of Teaching i.e. Programmed Learning and Conventional Method of Teaching
2. Dependent variable i.e. Achievement of students in English.
3. Controlled Variables
 - Socio-economic status
 - Grade Level
 - Intelligence
 - Prior knowledge of the subject
 - Mode of treatment
 - Contamination effect

Tools Used In the Study

Standardized Tool

1. General Mental Ability test for Children by Srivastav & Saxena (2012) to measure the intelligence of children was used by the researcher herself.

Self-Developed Tools

1. Achievement Test in English Grammar was developed by the researcher herself.
2. Frames for teaching in English through Individualized Instructions were developed by the researcher herself.

Statistical Techniques Used

1. Mean, S.D & t-test were employed to see the significant difference between pre-test and post-test scores.
2. Mean, S.D & t-test were employed to see the significant difference between experimental group and control group.

Procedure for Data Collection

The present study was experimental in nature. So the data was collected from one school i.e. Govt. Primary school, Shergarh, Kaithal. A request letter was sent to Block Education Officer, Kaithal and took the permission for data collection. After getting the permission from Head Teacher, the investigator gave intervention to the students of fifth grade. The data was collected through pre-test, experimental treatment, and post-test. After that, appropriate statistical techniques were employed on the data in order to find out the result.

Interpreation and Discussion

The interpretation of the study is reported based on the objectives stated as follows:

- *Identifying the difference between pre-test scores and post-test scores after treatment through Programmed Learning method on Students' Achievement in English*

Table-1 ENGLISH GRAMMAR

PROGRAMMED LEARNING	N	Mean	S.D	SE _D	df	t-value	Level of Significance
PRE-TEST SCORES	30	19.93	4.91	1.69	29	21.38	Significant at 0.05
POST-TEST SCORES	30	56.20	8.92				

Interpretation

It can be observed from Table 1 that the mean of achievement scores and standard deviation of Experimental Group-II (Learning through IPI) prior to the experiment (pre-test) 19.93 and 4.91 respectively. These values after treatment are 56.20 & 8.92 respectively. The 't' value at 29 degree of freedom is 21.38 which is more than table value at 0.01 & 0.05 level. Hypothesis "There exists no significant impact of Programmed Learning in pre & post-test scores in English of fifth grade learners" is rejected. This shows that there exist a significant impact of Programmed Learning in pre & post-test scores in English of fifth grade learners. Thus, it can be interpreted that experimental treatment proved effective in enhancing the achievement of fifth grade students in English at post stage.

- *Identifying the impact of Programmed Learning on the achievement in English of the Students*

Table- 1: Independent sample t-test comparing means of the Achievement in English of students, post-test scores between experimental group and control group

Table No. 2 ENGLISH GRAMMAR

GROUP	N	Mean	SD	df	t-value	Level of Significance
EXPERIMENTAL GROUP	30	56.20	8.92	58	14.54	Significant at 0.05
CONTROL GROUP	30	27.56	6.05			

Interpretation

It can be observed from the Table-2 that the mean achievement scores of Experimental Group and Control Group on post-test in English are 56.20 & 27.56 with standard deviation 8.92 & 6.05 respectively. The 't' value is 14.54 which is greater than the table value at 0.01 & 0.05 level. Hypothesis "There exists no significant difference in achievement in English through Conventional Teaching and Programmed Learning of fifth grade learners at post stage in English" is rejected. This shows that there exists significant difference in achievement in English through Programmed Learning and Conventional Teaching of fifth grade learners at post stage specifically in English. Thus, it can be interpreted that Programmed Learning is more effective than Conventional Teaching in enhancing the achievement of fifth grade students in English Grammar at post stage.

Main Findings and Discussion

The results of the study indicated that Instructional Material provided to the learners in the form of frames had a positive impact on the achievement of students in English. Paired Sample t-test was employed to see the significant difference between pre-test scores and

pot-test scores of Experimental Group. Table-1 indicated that t-ratio 21.38 is significant at 0.05 level of significance. This means that there is significant difference between pre-test scores and post-test scores of Experimental Group i.e. Programmed Learning Group. This signifies that after experimental treatment achievement became high. Table 2 indicated t-ratio 14.54 is significant at 0.05 level of significance. This means that there is a significant difference between the performance of the Experimental Group and Control Group after experimental treatment. The findings of the study is also supported by **Deepika (2015)** who found the achievement of the students of experimental group is significantly better than that of the control group on post-test. Another study indicated by **Babnik, Sirca & Dermol (2014)** also found that Individual learning had a positive contribution to the occurrence of learning behaviour in work teams. The result signifies that Programmed Learning is more effective than conventional learning in enhancing the achievement of the students in English. Indirectly the findings of the study were consistent with the study conducted by **Shihabudeen (2014)** entitled "A Study of Effectiveness of Programmed Instruction in Learning English as a Second Language by Secondary School Students". The main finding of the study was that the Experimental Group that learnt English through Programmed Instruction achieved high mean scores than that the control group which learnt through the conventional method of teaching. The result may be examined through the experiment conducted by the **Dadhaniya (1999)** on the effectiveness of the programmed learning method in teaching of English Grammar. The subjects were divided into two groups. One group was taught through the programmed learning method and other group was taught through traditional method. Data was analysed through the t-test. The result revealed that programmed learning was more effective than the traditional method to teach the English Grammar.

Educational Implications

The findings of this paper suggested that programmed learning is a better systematic self-instructional technique than conventional method in English Grammar. An important aspect of Programmed Learning is active participation in teaching learning process. It is interaction between the learner and learning material that is emphasised in the programmed learning. There are various special areas of the curriculum and many complex behaviours and skill that can be effectively improved and mastered through programmed learning technique. The scope of self-pacing gives opportunity to the students for learning with their own speed without obstructing the path of the others. It helps in the development of interrogative, judgemental and creative learning. It may prove useful in the enrichment of curriculum in the education of exceptional children (**Mangal & Mangal, 2009**).

References

- Aggarwal, Y.P. (1998). *Statistical Methods*. New Delhi: Sterling.
- Babnik, K., Sirca, T. N., & Dermol, V. (2014). Individuals learning in Work Teams: Support to Knowledge Management Initiatives and an Important Source of Organizational Learning. *Procedia - Social and Behavioral Sciences*, 124, 178–185.
- Dadhaniya, D.B. (1993). A study of Effectiveness of programmed learning method in teaching "Parts of Speech" in English Grammar. Unpublished M.Ed. Dissertation, Saurashtra University.

- Das, P.C. (1996). Effects of instructional strategies on the situation process of Primary school children in Arithmetical problems. Independent Study. Bhubaneswar: Regional Institute of Education.
- Flashman, & Jennifer (2012). Academic Achievement and its impact on Friend Dynamics. *Sociology of Education*, 85(1), 61-80.
- Kumari, S.K. (1972). Development of Programmed learning with reference to a unit of Physical Geography and Experimental Evaluation of its effectiveness. Unpublished M.Ed. Dissertation, Karnataka University, Dharwad.
- Mangal, S & Mangal, U. (2009). *Essentials of Educational Technology*. New Delhi: PHI Learning Private Limited.
- Mavi, N.S. (1984). *Programmed Learning: An empirical approach*. Kurukshetra: Vishal Publication.
- Mayerova, S.H & Rosicka (2012). Programmed Learning. *Procedia-Social and Behavioural Sciences*, 31, 782-787.
- Patel, I.J. (1972). *A Handbook of Programmed Learning*. Baroda: Indian Association of Programmed Learning.
- Peklaj, C., & Vodopivec, B. (1999). Effects of cooperative versus individualistic learning on cognitive, affective, metacognitive and social processes in students. *European Journal of Psychology of Education*, 14(3), 359-373.
- Whitley, W. (1979). The Effects of Individualized Instruction on the Attitudes of Middle School Pupils. *The Journal of Educational Research*, 72(4), 188-193.
- Wren, P.C., & Martin, H. (2008). *High school English Grammar and composition*. New Delhi: S. Chand

A Study of the Difference of Leadership Styles of Bharathi Cement Corporation Private Limited

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Abstract

This paper attempts to study the differences in the leadership styles as perceived by the leaders and sub-ordinates in a private sector enterprise. The study has revealed that differences do exist in different leadership styles - authoritarian, participative, bureaucratic, task-oriented and nurturant, as perceived by the leader himself and perceived by the subordinates in **Bharathi Cement Corporation Private Limited (BCCPL)**. In this paper, the authors made an attempt to identify the differences in leadership styles as perceived by the leaders and subordinates in BCCPL.

I) Introduction

The essentials of leadership are the same to all leaders in all positions due to the variation in the skills required, roles played, functions performed, issues tackled and the relationships promoted, different leaders have different perceptions of leadership. And, several attributes have been made both for the success and failure of leadership in the form of properties and processes or traits and styles of leaders. Further, even these attributes cannot provide a totally satisfactory guidance for the success of leadership. Hence, theoreticians and practitioners of leadership have developed the 'contingency approach'.

II) Concept of Leadership

Twentieth century has witnessed several theories on leadership which is a complex concept having a bearing on motivation, morale, organizational climate, human relations, and communication. The ability to influence people in a group is indispensable in organizations. Beginning with scientific management the evolutionary process of leadership can be traced with three theories viz., trait theory, behavioural theory and contingency theory. The trait theory has been put to rigorous research by Byrd, Jennings, Gheselli, Stogdill etc., and resulted in the development of behavioral theory. Likert's system 4 theory, McGregor x and y theory, Continuum theory of Tannenbaum and Schmidt, etc. has opened new vistas on the behavioural dimensions of leadership. The confusion and controversy of trait and behavioural theories have given way to the contingency models of leadership like Fiedler's contingency model, Vroom and Yetton contingency model, path goal theory, life cycle theory, tri-dimensional model, learning model, etc.

III) Review of Literature

Several studies made by different authors in both theoretical and empirical spheres of Leadership. Such as Weschler, Kahane and Tannenbaum, McCurely and Eber, Spector and Suttell, Calvin, Hoffmann and Harden, Fox, Mullen, Thiagarajan and Deep, Verma, Kalra, Sinha, Omer Bin Sayeed, Syed Vazith Hussain, etc. they studied the leadership in various views.

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IV) Need of the Study: The previous research studies do not make any attempt to study the differences in the leadership styles from the leader point of view and subordinates point of view. The present study attempts to analyze different styles of leadership and its perceptions by their subordinates.

V) Objectives of the Study is to find out the differences in leadership styles as perceived by the leaders and the subordinates in the BCCPL.

Hypotheses

H0: There is no significant difference in the leadership styles as perceived by the leader himself and those perceived by his subordinates.

VI) Methodology of the Study

The study is mainly based on primary data collected. The present study confines itself to Higher, Middle and lower hierarchical levels in BCCPL. The leadership styles were measured as judged by the leader himself (Leader's Self Perception). For the analyses of leadership styles of the Higher and Middle level employees, the leader's self perception was used. Five Leadership Styles as judged by the leader himself viz., Authoritarian, Participative, Bureaucratic, Task-Oriented and Nurturant leadership styles were used. The total sample for the study consists of 260 officers of BCCPL. Many studies have been undertaken on leadership styles adopted in different organizations. But relatively only a few attempts have been made to study the leadership styles in BCCPL.

VII) Analysis

The analysis of the difference between leadership styles as judged by leader himself and as judged by his subordinates of different levels of employees of BCCPL.

The leader's self perception and the subordinate's perception on leader leadership styles reveals about the leadership styles of Top Level Leaders, Middle Level Leaders and Junior Level Leaders of BCCPL.

The various scores on five leadership styles such as 'dictatorial leadership style', 'participative leadership style', 'bureaucratic leadership style', 'task-orientation leadership style' and 'nurturant leadership style's were computed from both leader's evaluation of ones own leadership style and followers judgment on superior's leadership styles.

With a view to find out difference between leadership style of a superior, as judged by the Top Level Leaders themselves and as perceived by his immediate followers, the analysis is done at three levels viz., Higher Level Leaders, Middle Level Leaders and Junior Level Leaders. Firstly, for the Top Level Leaders, the leader self perception scores were juxtaposed with the average score on subordinates (Middle Level Leaders) perception on superior leadership style. Secondly, for the Middle Level Leaders, the leader self perception scores were juxtaposed with the average score on subordinates (Junior Level leaders) perception on superior leadership style. Thirdly, for the Junior Level Leaders, the leader self perception scores were juxtaposed with the average score on subordinates (Clerks) perception on superior leadership style. For all this 't' test is useful to discover the substantial difference among the leaders self perception and as perceived by their immediate subordinates.

a) The difference between leadership styles of Top Level Leaders self perception and as perceived by their subordinates of BCCPL.

The degree of freedom (df) for the 't' value is N_1+N_2-2 . Top Level Leaders of BCCPL stood 9, where $N_1= 9$, Top level Leaders subordinates stood at 49, where $N_2=40$, the $df=N_1+N_2-2\Rightarrow 9+49-2=57$. By linear interpolation for 57 degree of freedom (df) for the

entries at 0.01 and 0.05 are 2.704 and 2.021 respectively. The calculated 't' value as per one star is at 0.05 level of significance and the calculated correlation value as per two stars is at 0.01 level of significance.

Table 1: Scores of 't', Standard Deviation and Mean values for five Leadership Styles in self-perception of Top Level Leaders and as perceived by their immediate subordinates of BCCPL

S.No.	Leadership Styles	Self perception of Top Level Leaders			perceived by his subordinates			't' value
		Mean	N	Standard Deviation	Mean	N	Standard Deviation	
1	Authoritarian Leadership Style (A)	22.4	9	4.8	17.2	49	4.5	0.01
2	Participative Leadership Style (P)	24.1	9	1.3	22.2	49	3.3	0.01
3	Bureaucratic Leadership Style (B)	26.7	9	2.8	22.1	49	3.8	0.01
4	Task-orientation Leadership Style (T)	25.8	9	3.4	23.7	49	3.1	0.12
5	Nurturant Leadership Style (N)	25.6	9	3.3	23.7	49	4	0.12

Source: Data collected from field study

The results of the difference between leadership styles in terms of mean, standard deviation and 't' values as perceived by the leader himself i.e., Top Level leaders of BCCPL about their leadership styles and as perceived by their immediate subordinates about their superior leadership styles are given in Table 1

At BCCPL, the mean values of 'dictatorial leadership style', 'bureaucratic leadership style', 'task-orientation leadership style', 'participative leadership style', and 'nurturant leadership style' are higher as perceived by leaders at Top level Leaders than as perceived by Top level Leaders subordinates At BCCPL, the standard deviation values of participative leadership style is high in as perceived by leaders at Top level Leaders than as perceived by Top level Leaders subordinates signifying that the difference of opinions in self perception and followers judgment of leadership styles.

At BCCPL, the 't' values of the leadership styles as perceived by leaders subordinates are less than the critical value (A 0.01, P < 0.05; P 0.01, P < 0.05; B 0.01, P < 0.05; T 0.12, P < 0.05 and N 0.12, P < 0.05) in 'dictatorial leadership style', 'bureaucratic leadership style', 'participative leadership style', 'task-orientation leadership style' and 'nurturant leadership style' as perceived by leaders at Top level Leaders than as perceived by Top level Leaders subordinates signifying that the perceptions of leaders about their leadership styles and subordinates perceptions of leaders leadership styles do not differ significantly.

As a result, the statement of null hypothesis "there is no significant difference in leadership styles of employees of BCCPL as judged by leader himself and as judged by his subordinates" is accepted.

b) The difference between leadership styles of Middle Level Leaders self perception and as perceived by their subordinates of BCCPL.

The degree of freedom (df) for the 't' value is N_1+N_2-2 . Middle Level Leaders of BCCPL stood 49, where $N_1= 49$, Middle level Leaders subordinates stood at 40, where $N_2=40$, the $df=N_1+N_2-2=49+40-2=87$. By linear interpolation for 87 degree of freedom (df) for the entries at 0.01 and 0.05 are 2.660 and 2.000 respectively. The calculated 't' value as per one star is at 0.05 level of significance and the calculated correlation value as per two stars is at 0.01 level of significance.

Table 2: Scores of 't', Standard Deviation and Mean values for five Leadership Styles in self-perception of Middle Level Leaders and as perceived by their immediate subordinates of BCCPL

S.No.	Leadership Styles	Self perception of Top Level Leaders			perceived by his subordinates			't' value
		Mean	N	Standard Deviation	Mean	N	Standard Deviation	
1	Authoritarian Leadership Style (A)	19.9	49	3.5	16.1	40	5.1	0.01
2	Participative Leadership Style (P)	24.2	49	3.4	23	40	4.2	0.15
3	Bureaucratic Leadership Style (B)	23.3	49	5.2	26	40	2.8	0.01
4	Task-orientation Leadership Style (T)	26	49	2.5	24.2	40	3.5	0.01
5	Nurturant Leadership Style (N)	25.4	49	3.2	23.3	40	4	0.01

Source: Data collected from field study

The results of the difference between leadership styles in terms of mean, standard deviation and 't' values as perceived by the leader himself i.e., Middle Level Leaders of BCCPL about their leadership styles and as perceived by their immediate subordinates about their superior leadership styles are given in Table 2

At BCCPL, the mean values of 'dictatorial leadership style', 'task-orientation leadership style', 'participative leadership style', and 'nurturant leadership style' are higher as perceived by leaders at Middle level Leaders than as perceived by Middle level Leaders subordinates whereas the mean values of bureaucratic leadership style is lesser as perceived by leaders at Middle level Leaders than as perceived by Middle level Leaders subordinates. At BCCPL, the standard deviation values of 'authoritarian leadership style' and 'bureaucratic leadership style' is high in as perceived by leaders at Middle level Leaders than as perceived by Middle level Leaders subordinates signifying that the difference of opinions in self perception and subordinates perception of leadership styles.

At BCCPL, the 't' values of the leadership styles as perceived by leaders subordinates are less than the critical value (A 0.01, $P < 0.05$; P 0.15, $P < 0.05$; B 0.01, $P < 0.05$; T 0.01, $P < 0.05$ and N 0.01, $P < 0.05$) in 'dictatorial leadership style', 'bureaucratic leadership style', 'participative leadership style', 'task-orientation leadership style' and 'nurturant leadership style' as perceived by leaders at Middle level Leaders than as perceived by Middle level Leaders subordinates signifying that the perceptions of leaders about Middle level Leaders

leadership styles and subordinates judgments of their leaders leadership styles do not differ significantly.

As a result, the statement of null hypothesis “there is no significant difference in leadership styles of employees of BCCPL as judged by leader himself and as judged by his subordinates” is accepted.

c) The difference between leadership styles of Junior Level Leaders self perception and as perceived by their subordinates of BCCPL.

The degree of freedom (df) for the ‘t’ value is N_1+N_2-2 . Junior Level Leaders of BCCPL stood 40, where $N_1= 40$, Junior level Leaders subordinates stood at 202, where $N_2=40$, the $df=N_1+N_2-2=>40+202-2=240$. By linear interpolation for 240 degree of freedom (df) for the entries at 0.01 and 0.05 are 2.576 and 1.960 respectively. The calculated ‘t’ value as per one star is at 0.05 level of significance and the calculated correlation value as per two stars is at 0.01 level of significance.

Table 3: Scores of 't', Standard Deviation and Mean values for five Leadership Styles in self perception of Junior Level Leaders and as perceived by their immediate subordinates of BCCPL

S.No.	Leadership Styles	Self perception of Junior Level Leaders			perceived by Junior Level Leaders subordinates			‘t’ value
		Mean	N	Standard Deviation	Mean	N	Standard Deviation	
1	Authoritarian Leadership Style (A)	21.2	40	4.9	18	202	4.4	0.01
2	Participative Leadership Style (P)	25.6	40	3.6	22.5	202	3.9	0.01
3	Bureaucratic Leadership Style (B)	23.3	40	3.9	23.4	202	4.4	0.81
4	Task-orientation Leadership Style (T)	26.3	40	2.4	23	202	3.1	0.01
5	Nurturant Leadership Style (N)	27.4	40	2.3	23.3	202	3.1	0.01

Source: Data collected from field study

The results of the difference between leadership styles in terms of mean, standard deviation and ‘t’ values as perceived by the leader himself i.e., Junior Level Leaders of BCCPL about their leadership styles and as perceived by their immediate subordinates about their superior leadership styles are given in Table 3

At BCCPL, the mean values of ‘dictatorial leadership style’, ‘bureaucratic leadership style’, ‘task-orientation leadership style’, ‘participative leadership style’, and ‘nurturant leadership style’ are higher as perceived by leaders at Junior level Leaders than as perceived by Junior level Leaders subordinates. At BCCPL, the standard deviation values of ‘dictatorial leadership style’, ‘bureaucratic leadership style’, ‘task-orientation leadership style’, ‘participative leadership style’, and ‘nurturant leadership style’s is less in as perceived by leaders at Junior level Leaders than as perceived by Junior level Leaders

subordinates signifying that there is no difference of opinions in self perception and followers judgment of leaders styles.

At BCCPL, the 't' values of the leadership styles as perceived by leaders subordinates are less than the critical value (A 0.01, $P < 0.05$; P 0.01, $P < 0.05$; B 0.81, $P < 0.05$; T 0.01, $P < 0.05$ and N 0.01, $P < 0.05$) in 'dictatorial leadership style', 'bureaucratic leadership style', 'participative leadership style', 'task-orientation leadership style' and 'nurturant leadership style' as perceived by leaders at Junior level Leaders than as perceived by Junior level Leaders subordinates signifying that the perceptions of leaders about Junior level Leaders leadership styles and subordinates judgments of leaders leadership styles do not differ significantly.

As a result, the statement of null hypothesis "there is no significant difference in leadership styles of employees of BCCPL as judged by leader himself and as judged by his subordinates" is accepted.

VIII) Findings

No significant difference is found in leadership styles at Higher, Middle, Lower Level Managers as judged by leader himself and as judged by his immediate subordinates in BCCPL.

References

- Morris, W.T. and Seeman, M. "The Problem of Leadership: An Interdisciplinary Approach," *American Journal of Sociology*, 56 (1950), pp.149-155.
- Shartle, C.L. "Studies in Naval Leadership," in H. Guetzkow Groups, *Leadership and Men*, Carnegie Press, Pittsburgh, 1951.
- Carter, L.F. "Leadership and Small Group Behaviour," in M. Sheriff and M.O. Wilson, eds., *Group Relations at the Crossroads*, Harper, 1953.
- Gibb, C.A. "Leadership," in G. Lindzey and others., *Handbook of Social Psychology*, Addison-Wesley, Mass, 1954.
- Bass, B. M., *Leadership, Psychology and Organizational Behaviour*, Harper, New York, 1960.
- Weschler, J.R., Kahane, M., and Tannenbaum, R. "Job Satisfaction, Productivity, and Morale: A Case Study," *Occupational Psychology*, 26, (1952), pp.1-14.
- McCurely, H.G., and Eber, H.W. "Democratic Versus Authoritarian: A Further Investigation of Group Problem Solving," *Journal of Personality*, 22, (1953), pp.258-269.
- Calvin, A.D., Hoffmann, F.K. and Harden, E.L. "The Effect of Intelligence and Social Atmosphere on Group Problem Solving Behavior," *Journal of Social Psychology*, 45, (1957), pp.61-74.
- Fox, W.M. "Group Reaction to two types of Conference Leadership," *Human Relations*, 10, 1957, pp.279-289.
- Sinha, J.B.P., *The Nurturant Task-Behaviour*, Concept Publishing Company, New Delhi, 1980.

Asymmetry in the Use of Information Sources by Select Demographic Variables

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Abstract

The retailer information and buyer information play a very important role in promoting any products through online sale. This research classifies information sources as social information sources and commercial information sources for seller-buyer information asymmetries. How these information sources influence demographic segmentation for performing online shopping? Data were collected from 207 respondents. Convenient Sampling Method was adopted for collecting the data. The Social Information Source (SIS) contains the following variables: word of mouth from children, friends, family members, and neighbours. The Commercial Information Sources (CIS) contain search engine, retailers e-mail link, print media, online review site, online contact form and social networking sites. The result of the study reveals that demographic factors like age, education, occupation and residential place do not statistically influence the use of information sources (SIS and CIS) for online shopping behaviour.

Keywords: *Online shopping, Social Information, Commercial Information, Word of Mouth.*

Introduction

Consumers seek reliable information while purchasing new products. With the growing internet popularity, online consumer reviews have become an important resource for consumers to find out product quality and other information. Studies show that firms not only regularly post their product information and sponsor promotional charts online but also consumer reviews as a new marketing tool (Chrysanthos, 2003). Marketers have made a number of attempts to link individual characteristics such as personality variables to buying behaviour. Without enough information to distinguish well from bad products (i.e., uncertainty about product quality) and reputable from disreputable sellers (i.e., uncertainty about seller credibility), buyers may not choose to participate in an action. This dual uncertainty contributes to a lemon market. As a result, adverse selection could eventually drive good quality items from the action market and cause lemon problem (Akerlof, 1970). The growth of the internet as a safe shopping channel has been developed since 1994, with the first sales of Sting album 'Ten Summoner's Tales. Wine, chocolates and flowers soon followed and were among the pioneering retail categories which fuelled the growth of online shopping. The notion that a person acquires product familiarity while progressing through different stages of the learning curve is well documented in the consumer behaviour literature (Howard and Sheth 1969). Amazon India will educate, train and enable tribal entrepreneurs in 14 tribal districts from Banaskantha in the north to Dangs in the south of Gujarat to directly sell their products to Amazon customers in India and across the globe (Neha, 17 Jan 2017). It is clear that information plays a very important role to

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promote e-retailing in India. The research question is “How does demographic factor affect information sources for online shopping buying behaviour?” The objective of the research is to understand the use of information sources by various demographic variables in their buying behaviour process.

Theoretical Construction: Demographic Factors

Consumer needs and wants change with age. Many products, such as toys, books, magazines, digital games, candies, chocolates, biscuits, fruit juices, and packaged foods, are specifically targeted at children and young people. Youngsters are active in social networking (Philip Kottler, 2012). Muthumanil, (2015) has found that the respondents who do online shopping are male belonging to the age group of 26-30 as well as they are working professionals. It is also inferred that there is a significant difference between ages, and income with the buying intention. Age is negatively correlated with online pre-purchase search but it is positively correlated with online purchasing when pre-purchase search behaviour is taken into account (Patricia Sorce, 2005). Online shopping factors are significantly affecting Indonesian Y gen's online buying behaviour, both simultaneously and partially. However, this study also reveals that marketing mix is as dominant factor that affects Indonesian Y generation to online shopping (Intan Puspitasari, 2017)

Harshavardhan Reddy *et al* (2015) found out that delivery problem, poor internet connection, privacy and security issues are some of the reasons preventing customers to shop online. Sharma (2016) found that socioeconomic factors, pertaining to the respondent buyer, did have a significant impact ; whereas those pertaining to the online retailers suggest that for increased market penetration, a communication strategy focused on bringing an attitudinal change among the chief wage earners is needed in those households that do not purchase food and grocery online. Constance Elise Porter, (2006) found that age, education, income and race are associated differentially with beliefs about the Internet, and these beliefs influence a consumer's attitude towards the use of the Internet. Purwanegara, (2012) explored that awareness is significantly influenced by gender, occupation, and monthly expense. This shows that different gender has different perception that creates attitude toward an online brand. Usually, female shoppers will quickly recognize every brand they know, but male shoppers only recognize the brand they use or that are associated with their hobby. Age, gender, education level, income and ethnicity are significant when considering the online shopping antecedents of trust, quality of herbal products, perceived risks and perceived benefits.

Information Sources

Customer perception is affected by advertisement, reviews, public relations, social media and personal experiences etc., It is mind blowing for the customers when they go for online shopping because of the wide range of internet facilities in this era. The result of this study by Barlow reveals that customers are intake in the future online shopping in the way of intention for getting a product through internet websites such as EBay, Flipkart etc., (Barlow, 2004)By lowering the costs of gathering and sharing information and offering new ways to learn about products before purchase the internet reduces traditional distinctions between search and experience goods. At the same time, differences in the type of information sought for search and experienced goods can precipitate differences in the process through which consumers gather information and make decisions online. Presence of product reviews from other consumers and multimedia that enable consumers

to interact with products before purchase has a greater effect on consumer search and purchase behaviour for experience than for search goods (Peng Huang, 2009).

Consumer search and experience goods are according to consumers 'ability to obtain product quality information before purchase. Consumers conduct minimal pre-purchase information search for experience goods but perform extensive search for search goods (Nelson, 1970). Information is associated with different cognitive processes that affect the way information is acquired, the amount of information acquired, and the time spent in processing each piece of information (Johnson, 2003) (Payne J. W., 1985) (Payne J. W., 1988). Amazon has also introduced "Zoom related search for images," Which is a refinement tool providing option to expand, narrow, or search related words (Notess, Search Engine, 2006). Amazon introduced "Find it on the Block", connected with their Yellow Pages Sections. In Addition to the usual directory and map information available at other local search and yellow pages search sites, "find it on the Block" adds actual pictures of millions of business storefronts in a few major U.S. Cities. Users can browse streets and see nearby stores (Notess, Internet Search Engine, 2005). Security in the e-mail retailing context refers to consumer's perception about the security of both online transactions along with the safety of their financial information (Tsiakis, 2012)

Cronbach's Alpha

In statistics, Cronbach's alpha is used as estimates of the reliability of a psychometric test. It has been proposed that data can be viewed as the expected correlations of two tests that measured the same construction.

TABLE 1: RELIABILITY TEST

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No of variables
.827	.825	14

The above table 1 explains Cronbach's alpha test for information sources variables. In this test 14 variables are included for reliability test. Based on the test Cronbach's alpha value is 0.827. Hence the value is justifies that the construction of questions are good for internal consistency to proceed further test.

TABLE: 2- DEMOGRAPHIC SEGMENTATION

Factors	Categories	Frequency	Per cent
Age Group (in year)	18 -28	128	61.8
	29-39	60	29.0
	40-65	19	9.2
Educational Level	Low Level	36	17.4
	Mid-Level	60	29.0
	High Level	111	53.6
Occupation	Salaried Class	55	26.6
	Businessmen	27	13.0
	Homemakers	16	7.7
	Students	70	33.8
	Professionals	39	18.8
Residential Area	Urban	82	39.6
	Semi-urban	56	27.1
	Rural	64	30.9
	Hill area	5	2.4

Table 2 shows the different demographic segmentation of online shoppers. 61.8 percent of the respondents are between 18 and 28 years, 29 percent of the respondents belonging to the age group of 29-39 years and the remaining 9.2 percent are between 40 and 65 years. 17.4 percent of the respondents are low education group that is up to Higher Secondary. 29.0 percent of the respondents are mid-education level, (degree holder), and 53.6 percent of the respondents are High Educational group (PG degree and above). 33.8 percent of the respondents are students, 26.6 percent of the respondents are salaried class as per their occupation, 18.8 percent of the respondents are professionals, 13.0 percent of the respondents are business people and remaining respondents (7.7 per cent) are homemakers. 39.6 percent of the respondents are living in urban area, 30.9 per cent of the respondents are living in rural area, 27.1 percent of them are living in semi urban area and only less than three percent of the respondents are living in hill area.

Result and Discussion

The One-Way ANOVA (Analysis of Variance) compares the means of two or more independent groups in order to determine whether there is statistical evidence to prove that the associated population means are significantly different. Here comparison is made, all the demographic variables are compared which are more than two groups as independent variables and information sources as a dependable variable for testing research questions.

H₀: There is no significant difference in the mean values of SIS & CIS among the various age groups.

TABLE 3: INFORMATION SOURCES ACROSS DIFFERENT AGE GROUPS

Age (in years)	SIS		CIS	
	Mean	SD	Mean	SD
18-28	1.86	.349	1.82	.385
29-39	1.83	.376	1.92	.279
40-65	1.95	.229	1.89	.315
F	0.774		1.66	
Sig	0.463		0.192	

From the above table 3 it is clear that consumers belonging to 40-65 years have highest mean value among the different groups in SIS. It indicates that consumers of more than 40 years depend on word of mouth from their children, friends and family members to get information on online shopping. Whereas CIS influences consumers of 29 to 39 years old as indicates highest mean score (M=1.92). This group of online consumers is influenced because they may spend more time on their working place. It would influence them as they frequently use email, social networking sites, search engine etc.,

Table 3 highlights that age does not have any influence on use of social information sources and commercial information sources while purchasing through online. Thus it can be concluded that there is no significant difference among different groups of age and use of SIS and CIS for online shopping.

H₀: There is no significant difference in the mean values of SIS and CIS among various educational levels.

TABLE4: INFLUENCE OF INFORMATION SOURCES AND EDUCATION LEVELS

Education	SIS		CIS	
	Mean	SD	Mean	SD
Low-level Education	1.75	.439	1.86	.351
Middle-level Education	1.85	.360	1.88	.324
High-level Education	1.90	.300	1.84	.370
F	2.632		0.328	
Sig	0.074		0.721	

Education can play a significant role for use the information sources (SIS and CIS) among online consumers. The above table depicts that the high level educated online consumers have secured the highest mean value among the different education groups in SIS. It clearly indicates that high level education group of online consumers depends on word of mouth from their children, friends and family members to get information on online shopping, whereas CIS influences the middle-level education group of online consumers. It clearly indicates that they have more information access through CIS.

Table 4 reveals that P value is greater than 0.05 and null hypothesis accepted. Hence it can be concluded that there is no significant difference in the mean values of SIS and CIS among the various educational levels.

H₀: There is no significant difference in the mean values of SIS and CIS among the various occupation groups

TABLE 5: INFORMATION SOURCES USED BY DIFFERENT TYPES OF OCCUPATION

Occupation	SIS		CIS	
	Mean	SD	Mean	SD
Salaried Class	1.88	.328	1.86	.351
Businessmen	1.82	.395	1.95	.213
Home Makers	1.88	.342	1.81	.403
Students	1.89	.312	1.83	.378
Professionals	1.79	.409	1.79	.409
F	0.483		1.199	
Sig	0.789		0.311	

The above table 5 shows the different occupations of online consumers and their usage of information sources (SIS and CIS) for online shopping. Among the different occupational groups students have secured highest mean score in using SIS, which indicate that students are influenced by their friends, family members and children for collecting information about online shopping, whereas CIS is used by businessmen. It is indicated through highest mean value.

Table 5 reveals that P value is greater than 0.05 and null hypotheses accepted. Hence it can be concluded that there is no significant difference in the mean values of SIS and CIS among the various occupation groups.

TABLE 6: INFORMATION SOURCES ACROSS DIFFERENT TYPES OF RESIDENTIAL AREA

H₀: There is no significant difference in the mean values of SIS and CIS among different residential backgrounds.

Residential Area	SIS		CIS	
	Mean	SD	Mean	SD
Urban	1.88	.329	1.88	.329
Semi Urban	1.89	.312	1.86	.353
Rural	1.81	.393	1.83	.380
Hill Area	1.75	.500	1.75	.500
F	0.765		0.354	
Sig	0.515		0.786	

The above table 6 shows the different type of residential backgrounds and their use of information sources (SIS and CIS) for online shopping. The mean value of semi urban consumers is high among the different residential groups in using SIS, whereas urban consumers have high mean value among the different residential groups in using CIS.

The ANOVA table shows that P value is greater than 0.05 and null hypotheses accepted. Hence it inferred that there is no significant difference in the mean values of SIS and CIS among different residential backgrounds.

Conclusion, Managerial Implication and Future Research

Information plays a vital role to influence the consumer to buy any product through online. When consumers want to buy goods through online usually they seek information about the product and make decision to buy product. In this research, information sources are divided into two types namely Social Information Sources (SIS) and Commercial Information Sources (CIS). In the social information source, the consumer receives information from their relatives, friends and family members through positive word of mouth. This could be influenced through quality of products and services rendered by online retailers to online consumers. The result of the study is that social information sources are used by 40-65 years old online consumers, highly educated consumers, student and semi urban consumers. 40 to 65 years old consumers are influenced by SIS because they have been more frequent contacts with their relatives, friends, family members and children. High level education group of online consumers are influenced with SIS because they may be influenced by relatives, friends and family members. The study reveals that the high educated consumers may be influenced by SIS. The result also reveals that students are highly influenced by SIS as they have chances to spend more time with relatives, friends, family members and children.

The second online shopping information source is Commercial Information Sources (CIS). The result revealed that 29-39 years old online consumers are highly influenced by CIS because they have been spending more time in work place and that may lead them to use e-mail, search engine, social media and other communication tools frequently, that may lead them to get information on online shopping. Consumers with medium level education use CIS because this group of consumers could find time to use communication tools like e-mail, conduct form, search engine, consumer ratings and reviews. Businessmen use CIS because they are already engaging with business related activities. For them it is easy to influence and they may be familiar with the way they learned information about the products in various platform. Urban consumers highly use CIS.

The overall results reveal that there is no significant difference between age, education, occupation, residential place and use of online information sources. It clearly explains the fact that when consumers would like to purchase any product through online they do receive or collect information from various channels. It isn't different among the various demographic segmentations. Hence the online retailers may use any information sources to reach their consumers. For SIS the online retailers should provide quality product and services to all the segmented groups of online consumers, which cause to satisfy the consumers. From the satisfaction they are naturally motivated to spread positive information about online shopping.

The researcher would like to conclude that SIS and CIS are very vital for online retailers as well as consumers for promotion of online shopping in India. Without compromising the quality of information the retailer may not promote the product. On blood and nerve systems are important for human body. In the same way information source is very important strategy to promote shopping through online in the years to come. Future researches may examine how the information sources may create intention among the shoppers to buy through online shopping.

Bibliography

- Barlow, A. K. (2004). Development in Information and Communication Technologies for Retail Marketing Channels. *International Journal of Retail and Distribution Management*, 157-163
- Chrysanthos, D. (2003). The Digitization of Word of Mouth: Promise and Challenges of Online Feedback Mechanisms. *Management Science*, 1401-1424.
- Constance Elise Porter, N. D. (2006). Using the Technology Acceptance Model to Explain How Attitudes Determine Internet Usage: The Role of Perceived Access Barriers and Demographics. *Journal of Business Research*, 999-1007.
- Intan Puspitasari, M. A. (2017). Y Gen's Online Buying Behaviour: Indonesian Case. *International Journal of Humanities and Social Science Invention*, 20-28.
- Johnson, E. J. (2003). "Cognitive Lock-In and the Power Law of Practice". *Journal of Marketing*, 62-75.
- Jones, L. R. (2010). Intentions to Shop Using Internet Catalogues: Exploring the Effects of Product Types, Shopping Orientations, and Attitudes Towards Computers. *Journal of Electronic Market*, 29-38.
- Mutaz M. Al-Debei, M. N. (2015). Consumer Attitudes Towards Online Shopping: The Effects of Trust, Perceived Benefits, and Perceived Web Quality. *Journal of Innernet Research*, 707-733.
- MuthumaniI, K. R. (2015). The Impact of Demographic Variables based on Buying Behaviour Intention Towards E-Store in India. *Journal of Theoretical and Applied Information Technology*, 62-66.
- Neha, A. V. (17 Jan 2017). *Sushma Ire Aside, Amazon to Help Tribals Here*. Chennai: The Economics Times.
- Nelson, P. (1970). Information and Consumer Behaviour. *Journal of political Economy*, 311-329.
- Nicholas, D. X. (2007). Consumer Preferences and Attitudes Towards e-Commerce Activities. Case Study: Greece. *6th WSEAS International Conference on E-Activities* (pp. 134-139). Spain: School of Library, Archive and Information Studies.

- Notess, G. R. (2005, May). Internet Search Engine. *May/ June*, pp. 5-14.
- Payne, J. W. (1985). "Effort and Accuracy in Choice". *Management Science*, 395-414.
- Payne, J. W. (1988). "Adaptive Strategy Selection in Decision Making". *Journal of Experimental Psychology: Learning, Memory, and Cognition*,, 534-552.
- Peng Huang, N. H. (2009). Searching for Experience on the Web: An Empirical Examination of Consumer Behaviour for Search and Experience Goods. *Journal of Marketng*, 55-69.
- Philip Kotler, K. L. (2012). *Marketing Management*. Dorling Kindersley.
- Purwanegara, A. S. (2012). *Factors Influencing Consumer's Online Brand Usage Behaviour: Evidence from Online Shoppers in Indonesia*. School of Business and Management.
- Sarita Prasad, M. S. (2016). Demographic and Socioeconomic Influences Shaping Usage of Online Channel for Purchase of Food & Grocery. *Indian Journal of Marketing*, 7-21.
- Tsai, c. C.-M. (2011). The Role of Cognitive Decision Effort in Electronic Commerce Recommendation System. *World Academy of Science, Engineering and Technology*, 66-70.
- Tsiakis, T. (2012). Consumers' Issues and Concerns of Perceived Risk of Information Security in Online Framework. The Marketing Strategies. *Procedia - Social and Behavioural Sciences*, 1265-1270.
- Tulay Girard, R. S. (2002). Influence of Product Class on Preference for Shopping on the Internet. *Journal of Computer- Mediated Communication*.
- Turan, A. H. (2012). Internet Shopping Behaviour of Turkish Customers: Comparison of Two Competing Models. *Journal of Theoretical and Applied Electronic Commerce Research*, 77-93.

वर्तमान दौर और दलित विमर्श

महीपाल*

दलित विमर्श आज के समय का एक ज्वलंत और प्रमुख मुद्दा है। भारतीय समाज की इस विकराल समस्या का चित्रण साहित्य में बहुत ही स्पष्ट रूप से किया जा रहा है। दलित साहित्य को लेकर कई लेखक संगठन मंच और संस्थाएँ बन चुकी हैं। दलित विमर्श आधुनिक समय में एक आन्दोलन का रूप लेता जा रहा है। स्वभाविक रूप से साहित्य समाज और राजनीति पर इसका व्यापक प्रभाव पड़ रहा है।

दलित शब्द का अर्थ है, जिसका दलन और दमन हुआ है। दलित लेखक कंवल भारतीय के शब्दों में "दलित वह है जिस पर अस्पृश्यता का नियम लागू किया गया है। जिसे शिक्षा ग्रहण करने और स्वतन्त्र व्यवसाय करने से मना किया गया है और जिस पर अछूतो ने सामाजिक नियोग्यताओं की संहिता लागू की, वही और वही दलित है" दलित समाज के अर्न्तगत वही जातियाँ आती हैं जिन्हें अनुसूचित जातियाँ कहा जाता है। परन्तु आधुनिक समय ये धारणाएँ और वर्जनाएँ प्रायः टूटती हुयी दिख रही हैं और इनके टूटने का प्रमुख कारण आधुनिकता से आई जागरूकता जनमानस का शिक्षित होना और सभी लोगों को बराबरी की नजर से देखने से है। आधुनिक समय में शिक्षा रोजगार व्यवसाय नौकरी व अन्य क्षेत्रों में सभी को समान अधिकार प्राप्त हैं। शहरों में वर्तमान समय में जो पुरानी पोंगापन्थी और जातिवादी की तथाकथित व्यवस्था थी उस पर जागरूकता के प्रहार करके उसे प्रायः तोड़ा जा चुका है पर ग्रामीण क्षेत्रों में आज भी जाति-पाति को आधार बनाकर दलितों का शोषण किया जा रहा है।

दलित साहित्य का वैचारिक आधार डॉ. भीमराव अम्बेडकर का जीवन संघर्ष है। ज्योतिबा फूले और महात्मा बुद्ध का दर्शन इस विमर्श की पृष्ठभूमि है। सभी दलित रचनाकार इस बिंदु पर एकमत है कि ज्योतिबा फूले ने स्वयं क्रियाशील रहकर सामन्ती मूल्यों और सामाजिक गुलामी के विरोध का स्वर तेज किया था। ब्राह्मण वादी सोच और वर्चस्व के खिलाफ किया था यही कारण है कि जहाँ दलित रचनाकारों ने ज्योतिबा फूले को अपना विशिष्ट विचारक माना है तो वहीं डॉ. अम्बेडकर की अपने शक्ति पुंज स्वीकार किया है।

डॉ. अम्बेडकर ने अनेक स्थानों पर जोर देकर कहा है कि दलितों का उत्थान ही राष्ट्र का असली उत्थान है। दलित चिन्तन में राष्ट्र पूरे भारतीय परिवार या कौम के रूप में है जबकि ब्राह्मणों के चिन्तन में राष्ट्र इस रूप में मौजूद नहीं है। उनके यहाँ एक ऐसे राष्ट्र की परिकल्पना है जिसमें सिर्फ द्विज हैं। यहां न दलित हैं न पिछड़ी जातियाँ है और न अल्पसंख्यक वर्ग हैं।

दूसरे शब्दों में वर्ण व्यवस्था ही राष्ट्र का मूल आधार है। कंवल भारती के शब्दों में "दलित मुक्ति का प्रश्न राष्ट्रीय मुक्ति का प्रश्न है। करोड़ों लोगों के लिये अलगाव वाद का जो समाज शास्त्र और धर्मशास्त्र ब्राह्मणों ने निर्मित किया है, उसने राष्ट्रीयता को खंडित किया था उसी के कारण भारत अपनी स्वाधीनता खो बैठा था। परन्तु आधुनिक समय में स्थितियाँ बदल रही हैं और एक दलित का भी एक सवर्ण के समान ही अपनी मातृभूमि भारत से प्रेम और लगाव है। दलित विमर्श के केन्द्र में वे सभी सवाल आते हैं जिनका संबंध भेदभाव से है चाहे ये भेदभाव जाति के आधार पर हो, चाहे रंग के आधार पर हो, नस्ल के आधार पर, लिंग के आधार पर हो या फिर धर्म के आधार पर हो अथवा आर्थिक असमनता के आधार पर है।

वर्तमान दौर के दलित चिंतक मानते हैं कि महात्मा गाँधी की हरिजन राजनीति ने एक रेडिकल दलित आन्दोलन को रोका। उसने अम्बेडकर विरोधी चेतना का विकास किया। इस तरह आज के दलित चिंतकों का गाँधीजी के दृष्टिकोण से मौलिक भेद है।

साहित्य में दलित विमर्श की तीन धाराएँ दिखाई देती हैं। पहली धारा स्वयं दलित जातियों में जन्में लेखकों की है जिनके पास स्वानुभूतियों का विशाल भंडार है और इसी आधार पर वे मानते हैं कि वास्तविक अर्थों में उन्हीं का सृजन ही दलित साहित्य है। दूसरी धारा हिन्दु लेखकों की है, जिनके रचना संसार में दलितों का चित्रण सौन्दर्य सुख की विषय वस्तु के रूप में होता है। तीसरी धारा प्रगतिशील लेखकों की है, जो दलित को सर्वहारा की स्थिति में देखते हैं।

दलित चिन्तकों के अनुसार अतीत का लोकमत, वर्ण व्यवस्था से पीड़ित दलित जनता का धर्म था। इसलिए दलित विमर्श की परम्परा का उससे गहरा संबंध है। उसने एक ऐसी विचार धारा को जन्म दिया जो वेद और वर्ण व्यवस्था विरोधी थी। यह परम्परा बाद में बौद्ध, सिद्ध और नाथों से मध्यकाल के दलित संतों तक पहुँची कबीर ने इसे दलित धारा का रूप दिया और अपने समकालीन हिन्दु मुस्लिमों को उद्देलित किया।

आधुनिक काल के आरम्भ में स्वामी दयानन्द तथा स्वामी विवेकानन्द के दलित विमर्श एवं गाँधी के अछूतोद्धार के राष्ट्रीय आन्दोलन ने दलित विमर्श को राष्ट्रीय प्रश्न बनाया और स्वराज्य के लिए दलित मुक्ति को अनिवार्य किया। स्वामी दयानन्द ने जाति को जन्म के स्थान पर कर्म से जोड़कर एक आधुनिक विचार को जन्म दिया और स्वामी

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विवेकानन्द तो उन्नीसवीं शताब्दी के अंतिम दशक और बीसवीं शताब्दी के आरम्भिक वर्षों में दलित चेतना के सबसे बड़े उद्भावक थे।

भारत की स्वतन्त्रता के बाद देश के दलित समाज में क्रांतिकारी परिवर्तन आया। स्वतन्त्रता शिक्षा आरक्षण, संवैधानिक संरक्षण, जातिगत भेदभाव दंड की व्यवस्था तथा दलित समाज में बुद्धिजीवी वर्ग का उदय और प्रशासन, राजनीति, शिक्षा आदि में भागीदारी के बावजूद भी देश में जातिगत भेदभाव की घटनायें वर्तमान समय में भी हो रही हैं। इस कारण भारत वर्तमान में भी अस्पृश्यता, मैला दुलाई, बरात में घोड़ी पर न चढ़ने देने जैसी अतार्किक और अमानवीय समस्याओं से युक्त हैं अर्थात् अभी भी अनेक स्तरों पर दलितों का नित नये-नये तरीकों से शोषण किया जा रहा है। इस शोषण का स्तर चाहे आर्थिक हो, चाहे जाति, धर्म, अशिक्षा व बेरोजगारी हो।

हिन्दी साहित्य के प्रसिद्ध कथाकार और दलितों के मसीहा मुंशी प्रेमचंद ने भी अपने उपन्यास गोदान में इस समस्या को उठाया है। उदाहरण स्वरूप कुछ पक्तियाँ उद्धरित हैं "सिलिया का बाप हरखू चमार कहता है कि तुम हमें ब्राह्मण नहीं बना सकते हो तो हम तुम्हें चमार बना सकते हैं। हमें ब्राह्मण बना दो, हमारी सारी विरादरी बनने को तैयार है। जब यह समर्थ नहीं है तो फिर तुम भी चमार बनो। हमारे साथ खाओ-पीयो, हमारे साथ उठो बैठो। हमारी इज्जत लेते हो तो हमें अपना धर्म दो"

वर्तमान समय में हिन्दी साहित्य में दलित विमर्श का रूप बदल गया है। स्वामी दयानन्द, स्वामी विवेकानन्द गाँधी, प्रेमचंद निराला, आदि सब पीछे छूट गये हैं और दलित लेखकों ने अपना विमर्श स्वयं तैयार कर लिया है। डॉ. कृष्णदत्त पालीवाल ने दलित लेखकों के इस दलित विमर्श की गंभीरता पूर्वक परीक्षा की है और वे सवर्ण-अवर्ण तथा दलित गैर दलित के विभाजन को पूर्णतः अस्वीकार करते हैं। क्योंकि वह अंधी गली में ले जाकर छोड़ता है। जातिवाद का जहर समाज को तोड़ रहा है और वैसे भी कोई सृजन के समय न तो भारतेन्दु के रूप में बनिया होता है और न प्रेमचंद की तरह कायस्थ। रचना के समय रचनाकार अपने निजी अस्तित्व को भूलकर अपने जगत का स्वयं निर्माता होता है वहाँ वह अपने व्यक्तिगत राग-द्वेष से रहित होकर सामूहिक अभिव्यक्तियों को व्यक्त करने का प्रयास करता है।

आज का दलित विमर्श एक तरह से दलित लेखकों तक सीमित होता जा रहा है। दलित लेखक ही असली दलित साहित्य की रचना करते हैं उनका साहित्य स्वानुभूति का है और परानुभूति का साहित्य उनका साहित्य नहीं है। दलित साहित्य की कोई परम्परा नहीं है, दलित साहित्य स्वायत्त है और उसका साहित्य-दर्शन अलग है और साहित्य की मुख्य धारा से उसका कोई संबंध नहीं है। ऐसे ही कुछ विचार और तर्क वर्तमान दलित-विमर्श में सुनाई पड़ते हैं, लेकिन गैरदलितों के सहानुभूति पूर्ण दलित साहित्य को दलित-विमर्श में स्थान न देने से देश के एक बहुत बड़े हिन्दु समाज को काटकर अलग कर देना विमर्श की शक्ति और उसकी व्यापकता को कम कर देना है। दलित लेखकों को यह समझना चाहिये कि इस नीति से उनका पाठक वर्ग कम होता जायेगा और एक बड़े वर्ग के लेखकों की सहानुभूति के कम होने का भी भय बना रहेगा।

वर्तमान समय के दलित लेखकों में मोहनदास नैमिषराय, भगवानदास, ओमप्रकाश वाल्मिकी, धर्मवीर श्यौराज सिंह वैचैन, जयप्रकाश कर्दम, अजय नावरिया, तेजसिंह, सूरजपाल चौहान, रजनी तिलक, मलखान सिंह सुशील टांक भौर आदि अपना विशिष्ट स्थान रखते हैं।

उदाहरण:-

हे महान देश
कब तक चलेगा तेरा यह भेदभाव
हम रहते हैं गाँव के बाहर
इसमें हमारा क्या दोष
देश के बाहर तो नहीं रहते?

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Cyber World And Adolescent Students

Dr. Mukesh Kumar*

Abstract

Aim of the article is to expose the influence of cyber world on students' life. The Cyber World is a world of attraction and enchantment and the most essential part of students' life in present time. The students are trying to excel their proficiency to compete the creations of the nature, with the advancement of science and technology and Cyber World, definitely, is the first step towards this. The internet is something without which no student can imagine his life as complete these days. We are living in an era where life would nearly come to a standstill without the use of this technology. Cyber World is a kind of trap in which present day students are caught and no exit from this trap is visible. No doubt that Cyber World made concepts easy to understand and this world is full of new knowledge and attractions. But as it is said that 'Excess of everything is bad', excess involvement of Cyber World in the life of students is also giving disastrous results. Too much use of technology or cyber addiction is hampering the life of students. The Cyber World is a glittering world that looks like a twinkling star from the distance, but this technology is as burning and dangerous as the Sun in practicality. Not only the Cyber World could engulf every single hard – earned penny but also capable of causing a serious damage to the human health and emotions. Cyber World, no doubt, is giving plenty of comfort to human life and living standards but, we still can't overlook the ill -effects that it is causing. The Blue Whale Challenge shows height of such things in the form of killing our 'future gems'.

Key Words: Cyber World, Glittering World, Trap, Suicide, Blue Whale Challenge, Pornography, Androids, Internet, stupid box, Cyber bullying etc.

Introduction

The world has become a global village. With the emergence of the World Wide Web and Internet, information has become an essential commodity for humans like food, water and shelter. Cyber World or the World Wide Web is a spectacular addition in today's fast paced life. With the advancement of science and technology, people are trying to excel their proficiency to compete the creations of the nature and Cyber World, definitely, is the first step towards this path. The Internet is a marvelous invention. It is something that mankind feels to be an essential part of the life. People collaborate like never before making way to a digital revolution. We are living in an era where life would nearly come to a standstill without the use of this technology. Today's ubiquitous computers and mobile phones (now we call them Smartphones) have become a part of human body. The Cyber World is a world of attraction and enchantment and the most essential part of students' life in present time. The internet is something without which no student can imagine his life as complete these days. The students are having a challenge, burden and pressure to excel in every field, and help from the Cyber World provide them opportunity to prove themselves. The Cyber World is a glittering world that looks like a twinkling star from the distance, but

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this technology is as burning and dangerous as the Sun in practicality. Cyber World is a kind of trap in which present day students are caught and no exit from this trap is visible. No doubt that Cyber World made concepts easy to understand and this world is full of new knowledge and attractions. But as it is said that 'Excess of everything is bad', excess involvement of Cyber World in the life of students is also giving disastrous results. Too much use of technology or cyber addiction is hampering the life of students.

Cyber World: A world full of charms and attractions

The present time of Computers, Laptops, Androids, and Internet etc. creates a world full of charms and attractions especially for the young generations they are devoting their entire time to this Cyber World. Computing power, development in communication technology and Internet Created a parallel world; a society within the large human society. We call that "Cyberspace". Cyberspace is a virtual community consisting of people connected to the internet. Present day youth or we can say students are the major part of this Cyber World. This world is full of fantasies and in other language; we can say is full of artificialities and hypocrisy. To live in the online world, a person needs a new online personality but it doesn't need to be an exact copy of his/her real life. Anonymity is guaranteed in Cyber World. Most people have entirely different personalities ranging from using aliases for names to changing their behavior and even gender. For example a shy and fearful mama's child can become an internet hero. A person who can't even look at girls in the real life can acts as a playboy in the internet or a virgin in real life can even have cyber-sex. As the students belong to a generation which lacks maturity, so they are attracted to this imaginary and hypocritical world full of charms and attractions, more easily than adults.

Positive Influence of Cyber World on Students' life

- **Source of education:** Education is wide field and that has plenty to do with the internet. The Cyber World provides all sorts of required information to the students and it is a whole lot of knowledge that a child can gain from the internet.
- **Virtual classes for students:** Cyber World provides opportunity of virtual classroom learning i.e., online classes for students who, due to any reason, unable to attend regular classes. A virtual classroom is an online classroom that allows students to communicate with one another, view presentation or videos, interact with other students.
- **Digital libraries:** Digital library is a collection of documents organized in electronic form, available on the internet or on CD-ROM (Compact –Disk Read Only Memory) disks. Students are able to access books, magazines, articles, papers, images, sound files and videos etc.
- **Search Engines :** Various search engines like 'Google' and 'yahoo" are always (24*7) available for the students where they can get every sort of knowledge.
- **E-mail:** E-mail is an online correspondence system. With e-mail you can spend and receive instant electronic messages, which work like writing letters. Your messages are delivered instantly to people anywhere in the world, unlike traditional mail that takes a lot of times.
- **Androids and mobile application:** The mobile apps and mobile internet has fastened the race. People are carrying their complete kit into their pockets. The world has shrunk and dumped into the pockets of the students. This very technology has eased out the living multi-fold.

- **Music and video entertainment:** Internet provides a wide range of entertainment. All sorts of music and videos, movies and many more things can be downloaded from the internet. Even the oldest of collection could be found very easily through the internet.
- **Computers and Internet:** The news through the internet spreads much faster than any physical paper. Gone are the days when people used to buy newspapers. Everything is now just a click away. People get the news from time to time. The publicity of any matter could be done in much speedy manner to the large masses through the internet than any other mode.
- **Be in contact with friends:** Cyber World provides opportunity to the students to be always in contact with friends. One can even find any old missing from a long time friend through face book etc.
- **Find jobs quickly:** With the help of Cyber World students can find job easily and quickly without being physically exhausted.
- **Makes our works easier:** Use of internet makes every work easier and full of fun. Life become easy and less hectic when we use it in our daily routine works like- knowing the schedule of trains and buses, booking cabs, online shopping and ordering food online etc.
- **Save our times:** WE don't have to stay in queues of any super-market, Movie ticket counter, train ticket booking, students' fee- submission, electricity bill payments etc. and thus cyber world save our times and energy.

Negative Influence of Cyber World on Students' life

- **Cyber bullying:** Cyber bullying has been a growing source of concern among educators, parents, and the media over the last decade. Cyber bullying is the use of electronic communication to bully a person, typically by sending messages of an intimidating or threatening nature.
- **Life Ruining Games: Blue Whale, Momo, Wake Me Up at 2:40 am, The Silent House, A Sea of Whales etc.**

In Mumbai, a 14-year old boy jumped to his death from the terrace of a seven-floor building in the Andheri East area on 29, July 2017. He had photographed himself sitting on the parapet just before jumping off and captioned it. "Soon the only thing you would be left with is a picture of me." This was reported in the media on July 31, as the first suspected case of Blue Whale-linked suicide in India.

15 year old **Ankan Dey's body was found in the bathroom** of his home on 12 August 2017, a towel wrapped around his neck and a plastic sheet around his face, he had scribbled an English poem in his notebook. Dey had shown the poem to a close circle of friends, who recommended he show it to one of the teachers at their school in west Midnapore district. He did not. "He later told his friends it was not an original composition and he picked it up randomly from the internet," said a police officer privy to the investigation into Dey's death. "I do not remember whose poetry it actually was but it expressed immense grief. The victim left no suicide note. So far poem is the only clue that leads us to the logical assumption that he could be a victim of severe depression. Almost immediately after Dey's suicide, it began to be reported as the first death in West Bengal linked to the global Blue Whale phenomenon.

The Blue Whale Challenge is said to be an online game in which a designated curator assigns players various tasks over a 50-day period, culminating in the player committing suicide.

In Delhi, the **19- year old son of a former Manipur minister died** after falling from the terrace of a restaurant in South Delhi's Haus Khas area on 12 August, 2017. This death too was linked to the Blue Whale challenge in a report published in The Times of India.

A few other cases of attempted suicide in India have also been linked to the Blue Whale Challenge. One such case was reported from Indore in Madhya Pradesh on August 10, a **class 7th student tried to jump from the third floor of his school building.**

A similar case was reported in Dehradun. **A teenager who had left his home in Solpur** early this month was picked up from along a highway by the police. A report in the Mid Day newspaper claimed he had left for pune to execute a Blue Whale task.

The Russia connection

India is not alone in reporting suicides linked to the Blue Whale challenge. Russia is epicenter of the phenomenon. A report on Snopes.com, which specializes in researching and fact-checking urban legends, explains how the trend was first reported by a Russian website Novaya Gazeta in May 2016. The Russian site had analyzed 130 suicides of children in the country from November 2015 to April 2016, and concluded that at least 80 of them were related to the Blue Whale challenge. Russian authorities arrested a 22 year old young man they suspected of being the ringleader of Blue Whale Challenge after he bragged about convincing teenagers to commit suicide. He has since been jailed for three years for inciting people to kill themselves, the Daily Mail report.

Role of Government in India

In India, minister of women and child development Ms. Maneka Gandhi took up the matter with home minister Mr. Rajnath Singh and information technology minister Mr. Ravi Shankar Prasad that time, asking for the removal of all links to Blue Whale challenge from the social media. In her letter to the two ministers, Ms. Gandhi said the game was believed to have persuaded some 100 children and young adults to kill themselves in the United States, China, and elsewhere, the Press Trust of India reported.

On 15 August 2017, according to PTI, the Centre ordered Google, Face book, What's App, Instagram, Microsoft, and Yahoo to remove the Blue Whale challenge from their Platforms.

- **Lack of time and emotions for the family life:** Students are in to the world of Internet and hardly get time to interact, move out and have some good affectionate hours. People have forgotten the importance of family, friends and relations and all they are concerned is just with the internet.
- **Pornography:** The photos and videos of the common man which are uploaded on the social networking sites could be easily accessed and misused. Pornography is one of the most dangerous hazard of such uploads.
- **Safety for girls:** The youth especially the girls who get carried away with the social interaction and networking are many a times be fooled and taken undue advantage of the social networking has also ruined the lives of girls by playing up with her character.
- **Health:** Internet has made the health conditions miserable. We can find the people in their early twenties with the lifestyle disorders. The internet has made the life sedentary and all the physical activities have been completely abolished. This '**stupid box**' has given rise to many new medical terminologies.
- **Lack of restrictions:** The easy accessibility and lack of restrictions has led to the spread of unwanted stuff in the young minds. People might permit children the usage

the internet for the education purposes, but the adverts that gets popped up every now and then, deviate the concentration of the children.

- **Meet bad people:** Students used many social web sites and be in contact with many different type of people. But some times some people create their fake IDs on those sites and immature students are caught easily in their traps which some times ruins their lives.
- **Addicted to internet:** Students make use of internet for the purpose of getting knowledge and entertainment mainly but some times they became addicted to internet and other gadgets and became slaves of internet.
- **Get wrong information through social media:** All the information which we got through social media is not always authentic. Some times some anti- social elements create fake news and false information spread through social media which can heart emotions of students.
- **Falling out the habit of reading:** Students are loosing interest in reading and writing due to cyber world because mobile phones, laptops, computers etc. provide knowledge and information on one click. Therefore, no student wants to peep in dictionary or books. For knowing anything.
- **Losing creativity:** As students spend more time on being 'online', so, their day to day life lack creativity. Because of 'internet' no student need to solve his/her problems through experience and new thoughts, rather they are having all solutions handy all the time in the form of 'internet'.

Conclusion

The Cyber World precisely is a wonder world. It has the capacity to give everything. Every technology that has the power to yielding the best also has the capacity to destroy. Human mind is much brilliant than any technology and we have been gifted by the power of reasoning by the nature. We humans should make wise use of the technology and avoid getting dependent on it. It should not interfere with the intellect of the human beings. A wise use of technology will make the life simple and comfortable.

Finally, we can simply say that cyber world is a human miracle. Its advantages far outweigh the disadvantages and millions of people each day benefit from this amazing Cyber World. That said, we still have to make wise use of the technology at hand and avoid any kind of dependency on it. The hindrance from the cyber world shouldn't become a worrying factor in the future is what we all should hope.

References

Bessiere, K.; Pressman, S.; Kiesler, S. and Kraut, R. (2010). Effects of Internet Use on Health and Depression: A Longitudinal Study. *Journal of Medical Internet Research*. Vol.12 (1):e6.

Charms and Challenges of Cyberworld. <https://www.careerride.com/view/charms-and-challenges-of-cyberworld-15787.aspx>

Cyber World, Its Future and Challenges-Enigmatic Journal. enigmaticjournal.blogspot.com/2014/02/cyber-world-itsfuture-and-challenges.html

Dey, A. (2017). Are Indian teenagers really committing Suicide because of the Blue Whale challenge? <https://qz.com/india/1059240/are-indian-teenagers-really-committing-suicide-because-of-the-blue-whale-challenge/>

George, M.J. & Odgers, C.L. (2015). Seven fears and the science of how mobile technology may be influence adolescents in the digital age. *Perspect Psychol Sci.* vol.10(6)832-851.

Heal, C. (2018). Young Mind publishes report on impact of cyber bullying on young people's mental health. <https://swgfl.org.uk/magazine/young-minds-publishers-report-on-impact-of-cyber-bu/>

Manjari, A. Essay on the Cyber World-Its Attraction and Challenges in Hindi. www.shareyouressays.com/hindi-on-the-cyber-world-its-attraction-and-challenges-in-hindi/124553

Safety and security on the internet challenges and advances in member states: Global observation for eHealth series-vol-4, World Health Organization (2011). www.who.int

Sen,M. (2017). Cyber World- A boon or a bane. Maumitaworld.blogspot.com/2017/10/cyber-world-boon-or-bane.html

Wagner, D.T.; Barnes, C.M.; Lim, V.K.G. and Ferris, D.L. (2012). Lost sleep and cyberloafing: Evidence from the laboratory and a daylight saving time quasi-experiment. *Journal of Applied psychology.* Vol.97, no. 5,1068-1076.

Locus Of Control And Academic Stress Of Adolescents In Relation To Their Gender And Birth Order

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Abstract

A sample of 200 students of Rohtak district of Haryana state was selected randomly. The sample was administered through Locus of control Indian adaptation of Levenson scale by Vohra and Academic stress scale by Akhtar. Mean, Standard Deviation (S.D), SED, t-test and correlation were used for analysis and interpretation of the data. The findings of the study revealed that a) male and female adolescents are similar in locus of control. b) 1st Born and later born adolescents are similar in locus of control. c) male and female adolescents are similar in academic stress. d) first born and later born adolescents are similar in their academic stress.

Keywords: Locus of Control, Academic Stress, Adolescents, Gender and Birth Order

Scientific and technological progress all over the globe has made highly sensitive critical and creative. Associated with this growth is the emergency of stress. The term stress has become a part of every day's vocabulary. Every single child had his unique nature as regards capabilities, attitudes, personality characteristics and interests and as such he reacts in his unique way to the situations in the class resulting in very extensive differences and stress. Stress occurs when there is substantive imbalance between environment demand and response capability of the organism

Gupta and Khan (1987) "academic stress is a mental distress with respect to some anticipated frustration associated with academic allures and even and awareness of the possibility of such failure.

Burner (1963) "states that occurs upon a time the children said good night to their parents and went to bed now days often they may say good night to the children and to bed leaving the young scholars to finish their endless homework or prepare for an examination sometimes before down.

Acc to Bector (1985):- A student is caught in a dynamic technology whirlpool and to precariously poised on the brink of disaster.

Locus Of Control

Locus of control is a theory used in personality psychology that refers to causation as perceived by individuals in response to personal outcomes or other events. The theory was developed by Julian B. Rotter in 1954, and has since become an aspect of personality studies. A person's "locus" (Latin for "place" or "location") is conceptualized as either internal (the person believe they can control their life) or external (meaning they believe that their decisions and life are controlled by environment factors which they cannot influence).

Individuals with a high internal locus of control believe that events in their life derive primarily from their own actions; for example, if a person with an internal locus of control does not perform as well as they wanted to on a test, they would blame it on lack of

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preparedness on their part. If said individual performed well on a test, the outcome would then be attributed to the individual's ability to study. In the test-performance example if a person with a high external locus of control does poorly on a test, they might attribute the outcome to the difficulty of the test questions. If they performed well on a test, they might think the teacher was lenient or that they were lucky.

Locus of control has generated much research in a variety of areas in psychology. The construct is applicable to fields such as educational psychology, health psychology or clinical psychology. There will probably continue to be debate about whether specific or more global measures of locus of control will prove to be more useful. Careful distinctions should also be made between locus of control (a concept linked with expectancies about the future) and attribution style (a concept linked with explanations for past outcomes), or between locus of control and concepts such as self-efficacy. The importance of locus of control as a topic in psychology is likely to remain quite central for many years.

Operational Definition

ACADEMIC STRESS

Scientific and technological progress all over the globe has made highly sensitive critical and creative. Associated with this growth is the emergency of stress. The term STRESS has become a part of every days vocabulary.

LOCUS OF CONTROL

Locus of control is a theory used in personality psychology that refers to causation as perceived by individuals in response to personal outcomes or other events. The theory was developed by Julian B. Rotter in 1954, and has since become an aspect of personality studies. A person's "locus" (Latin for "place" or "location") is conceptualized as either internal (the person believes they can control their life) or external (meaning they believe that their decisions and life are controlled by environmental factors which they cannot influence).

ADOLSECENCE

Adolescence is that period of life during which boys and girls move from childhood to adulthood in terms of mentally, emotionally, socially and physically.

GENDER

The state of being male and female

BIRHT ORDER

Is the rank of siblings by age? Birth order is often believed to have a profound and lasting effect on psychological development. This assertion has at best only limited empirical support and has been repeatedly challenged by researchers, yet birth order continues to have a strong presence in pop psychology and popular culture.

Objectives

1. To compared the difference in locus of control of male and female adolescents.
2. To compare the difference between locus of control of first born and later born adolescents.
3. To compare the difference between in academic stress of male and female adolescents.
4. To compare the difference between in academic stress of first born and later born adolescents.
5. To compare the difference between academic stress, gender and birth order of adolescents.
6. To compare the difference between locus of control, and birth order of adolescents.

7. To compare the relation between academic stress and locus of control in relation to their to their gender and birth order.

Hypotheses

1. There is no significant difference in locus of male and female adolescents.
2. There is no significant difference in locus of 1st born and later born adolescents.
3. There is no significant difference in academic stress of male and female adolescents.
4. There is no significant difference in academic stress of 1st born and later born adolescents.
5. There is no interaction effect of academic stress, gender and birth order of adolescents.
6. There is no interaction effect of locus of control gender and birth order of adolescents.
7. There is no significant difference between academic stress and locus of control in relation and birth order.

Delimitation Of Study

- The present study was delimited random sample taken study of locus of control and academic stress of adolescents in Rohtak district.
- The study was delimited to a sample 200 adolescents comparing 100 male and 100 female taken from different schools.
- Two variables considered for the present study was locus of control and academic stress.

Review Of Related Studies

Locus of Control

Garbato (2010), conducted a study to examine the effect leader sex, leadership style and employees' locus of control on employees' satisfaction. the results of this study showed that higher internal locus of control and a democratic leadership style were associated with greater job satisfaction, while no effects for sex of protagonists were obtained.

Zhang Bruning (2011), investigated the impact of owners' and senior managers' personal characteristics such as need for achievement, need for cognition and internal locus of control on their firm's performance. Data were collected through a national survey of owners and senior managers of small-to medium-sized Canadian manufacturing companies. The findings revealed that owners' and senior managers' personal characteristics, such as need for achievement, need for cognition and internal and locus of control have positive influences on firm performance.

Reena kumara and Vijay Kumar (2014), conducted a study, Hypothesis are accepted and found that there is no significant difference in the stress scores and internal & external locus of control of the male and female government school students it shows they all feel more stressed. There exists no significant interactional effect of locus of control and gender on stress.

Academic Stress

Ghaderi et.al (2009), studied the depression anxiety and stress among Indian and Iranian student. The result revealed that the depression, anxiety and stress level of Indian students are significantly higher than those of Iranian students. Furthermore, gender difference was not found significant.

Balaji Rao, R (2013), A study of academic stress and adjustment styles of teacher trainees shows that academic stress and adjustment styles of the D.Ed. subject background. Locality and religion did not show any significant differences due to many other reasons.

Methodology

In the present study, Descriptive survey method was employed

Sample

In over to achieve the objective stated earlier and to test the corresponding hypotheses, district Rohtak, Haryana state was planned.

Variables

Locus of Control, Academic stress , Gender and Birth Order

Tools Used

- Locus of control Indian adaptation of Levenson scale by Vohra
- Academic stress scale by Akhtar.

Statistical Techniques Used

Mean, Standard Deviation (S.D), SED, t-test were used for analysis and interpretation.

Analysis and Interpretation

Hypothesis 1

There will be no signifying difference in locus o male and female adolescents.

Category	N	Mean	S.D.	T-Value	Level of significance
Male	100	74.91	7.56	.171	Null
Female	100	7.73	7.43		

P<0.05=1.96, p<0.01=2.58 at df. 198.

Interpretation:- Table shows that t-value (.171) is level of significance so **Hypothesis-I, “there will be no significant difference in locus of male and female adolescents” is accepted.** Hence it may be conclude that male and female adolescents are similar in locus of control.

Hypothesis 2

There is no significant difference in locus of control of 1st Born and later born adolescents.

Category	N	Mean	S.D.	t-value	Level of significance
1st Born	100	75.43	5.87	1.15	Null
Later Born	100	74.21	8.79		

P<0.05=1.96,p <0.01=2.58 at df. 198.

Interpretation:-Table shows that t-value (1.15) is less than the table value at both level o significance so **Hypothesis-I, “There is no significant difference in locus of control of 1st Born and later born adolescents” is accepted.** Hence it may be conclude that 1st Brno and later born adolescents are similar in locus of control.

Hypothesis 3

There is no significant difference in academic stress of male and female adolescents.

category	N	mean	S.D.	t-value	Level of significance
Male	100	171.28	10.33	1.43	Null
Female	100	168.99	12.27		

P<0.05=1.96, p<0.01=2.58 at df. 198.

Interpretation:-Table shows that t-value (1.43) is less than the table value at both level of significance so **Hypothesis-1, “ there is no significant difference in academic stress of male and female adolescents” is accepted.** Hence it may be conclude that male and female adolescents are similar in academic stress.

Hypothesis 4

There is no significance difference in academic stress of first born and later born adolescents.

category	N	Mean	S.D.	t-value	Level of Significance
First Born	100	171.38	10.224	1.55	Null
Later Born	100	168.89	12.339		

Interpretation:-Table shows that t-value (1.55) is less than the table value at both levels of significance so **Hypothesis-1, “there is no significance difference in academic stress of first born and later born adolescents.”** is accepted. Hence it may be conclude first born and later born adolescents are similar in academic stress.

References

Akhtar, Academic stress scale administrator and manual, NPC, Agra.

Garbato, M.C. (2010). The effect of leader, sex, leadership style and locus of control on employee satisfaction. Unpublished Master thesis, California State University.

Kumari, R. (2014). The impact of Religiosity and locus of control on academic achievement in college. Journal of International academic research for multidisciplinary, 2(4).

Vohra, Locus of control Indian adaptation of Levenson, administrator and manual, National Psychological Corporation, Agra.

Zhang, D.D. and Bruning, E. (2011). Personal Characteristics and strategic orientation: Entrepreneurs in Canadian Manufacturing companies. International Journal of Entrepreneurs Behaviour & Research, 17(1), 82-103.