

An Analytical Study of the Role of Statistical Techniques in the Consumer Buying

Process: An Empirical Study

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Abstract

The objective of this article is to analyze different types of decision making and use statistical models to predict consumer behavior in different situations and areas of application. We have examined and classified several case studies on consumer decision making and we have classified them thematically, as well as the underlying quantitative techniques to assess their relevance. We wanted to formulate a model based on real-time data and then the comparison data used in the model, analyze and interpret scientifically.

Keywords: consumer behavior, models for consumer decisions, decision-making models, decision styles, probabilistic approach to decision making, statistical decision analysis.

[1] Introduction

Consumer decisions are a complicated process because there are many seemingly abstract and unrelated variables. The effort to observe and examine patterns in cognitive behavior is the focus of many research studies. Probability theories are used to understand decision making for incomplete and inaccurate information. There are five steps that have been identified and recognized in the decision-making processes. These steps include identifying the problem, finding suitable alternatives, evaluating existing options, selecting among the options and evaluating the result of the selection. (Schiffman and Kanuk, 1994: 566-580; Solomon, 1996: 268; Du Plessis et al., 1991: 27; Foxall, 1983: 75).

Understanding the consumer decision-making process is extremely valuable for any company. The manipulation of consumer choice can be both companies and also help policy makers to maximize their profits at the same level of investment. Understanding these processes helps to develop marketing strategies aimed at the consumer. One of the most important aspects of marketing is to fully understand the buyer's journey. If you know all the cognitive, psychological and sociological aspects that led to the final decision of the client, you will succeed. This decision-making process is a guide to explore how consumers make decisions. However, it is important to remember that the phases are not rigid and depend largely on many factors that can be environmental and manifest without notice. Recognition problem occurs when a consumer faces an unmet need is already a product desires that satisfies this need. The objective of a seller should be to make the consumer possible to meet unmet needs and to show the consumer how the product or service will meet this need. The consumer generally develops a series of criteria on the basis of which he will make his decision. The attributes that affect emotions (eg, perceived trust, perceived comfort, excellence perceived or perceived status) weigh - making processes more difficult decisions. Satisfaction with the purchase determined the future behavior of the consumer towards the product. Depending on whether your expectations were met, you would prefer to choose the same or a different product. In our study, we try to examine the various factors that concern Indian consumers when they buy a particular product.

[2] Description of the investigation

Studying the work done in this direction has helped us greatly in advancing our research. Not only did it help us understand the ideas and concepts on this topic, but also the areas in which we still have to work. The following studies aim to understand the consumer behavior that is directed at a particular product. We tried to observe the factors that played in the minds of Indian consumers while making a purchase.

We also try to quantify the impact of external factors in the decision-making process. These studies can have a direct impact on the marketing strategy of a product and can help make management decisions about the strategy to target specific demographic groups. The impact of consumer

decisions in the area of technological products is immense. Understanding the consumer mentality can help the company increase sales many times. In the Indian context, there are many factors that affect the buying process. We take the example of cell phones. The impact of technology in our lives is huge. The technology market is considered very complex. To capture the right moods, all companies compete for their participation in the Indian market . The consumer base in India is huge and it has become necessary to develop strategies with the correct analysis.

[3] Research Methods

The objective of the study was to identify the factors that are decisive for the decision to buy mobile phones among consumers who buy in shopping centers. The theory of consumer decision was developed in the disciplines of psychology, marketing and consumer behavior and organization. The objective of this research is to predict consumer decisions. There are two main types of research in consumer behavior research: quantitative and qualitative. According to the requirements, a quantitative test method is used to predict consumer behavior. This section describes the research method. A detailed analysis of a sample quantity is performed to examine the consumer's decision. We use a questionnaire for implementation. Based on the research experience of previous researchers, the survey becomes the most important method for examining consumer decisions. The objective of this survey is to evaluate the attitudes of Indian consumers towards mobile phones. According to data on the attitudes of Indian consumers towards mobile phones, the impact and interpretation of the research is understood.

3.1 Theory

The question always arises as to whether consumer behavior when buying a technological product is different. The competition in the technology market is huge, which means that innovative and new products are launched almost every day. The rapidly changing technological conditions lead to shorter life cycles and the need to make quick decisions. This has not only resulted in exceeding customer expectations, but has also resulted in a scenario of over-selection for the consumer. Due to the dynamic market conditions in this area , companies often depend on a product approach and a specific target group. Several decision models have been proposed and studied for consumers to

understand this area. The formulation of models for each process offers several advantages. Consumer decision models provide a better understanding of the impact of changing one variable on the other dependent variables. These models also logically show the interrelation between variables for research purposes. They also help to understand processes and strategies and form the basis for the establishment of theories. Walters (1978: 43) stated that consumer decision models provide precise causes and effects that are related to consumer behavior. About 300 years ago, Bernoulli gave the first official explanation for consumer decision making. It was later modified and expanded by Neumann and Morgenstern. It is known as utility theory. This theory suggested that consumers should make decisions based on the expected results of their decisions. Consumers were seen as logical signs capable of assessing the likely outcome of decisions in the face of uncertainty and choosing the alternative that would provide. However, this idealistic model is practically impossible. In general the consumers do not are rational or consistent. Despite its deficiencies, this utility model was considered the predominant decision model. Nobel laureate Herbert Simon proposed an alternative and simpler model in the mid-1950s. Here, consumers reached approximately where they wanted to go and then stopped the decision-making process. This theory corrects the pitfalls of the theory of use. However, it could still be improved. The researchers made additional efforts to develop better models for consumer decision making. In the late 1970s, two leading psychologists, Daniel Kahneman and Amos Tversky, developed the theory of perspective. Two main elements have been added. First, the concept of value that replaces the utility contained in the theory of utility. Second, a foundation in which a valuable object is when the owner what if another person owns it. The value served as a reference for comparison and was useful for assessing profit and loss.

3.2 Method Design

The design method is related to the detailed design of the survey questions to the analysis. This sector will cover the research framework, the questionnaire and data collection, the research and sampling environment, data analysis, validity and reliability. There are certain factors that can affect the different phases of the consumer decision making process.

3.3 Questionnaire and Data Collection

Respondents who bought cell phones were selected as the population for this study. The study was conducted by distributing questionnaires to respondents. The show consists mainly of students and young workers who bought cell phones at a mall in New Delhi during the busy Diwali festival. Data over a period of ten days were collected and used for this study. The questionnaire was compiled by Likert Scale. With respect to Likert (1932, p. 3), a cumulative scale was proposed to assess the attitudes, opinions, psychological and mental dispositions and preferences of the respondents. Likert scales are easy to perform, analyze and, above all, "easy to answer" for consumers. In the Likert scale questionnaire, the number 1 on the left side of the scale indicates the "strong rejection" of the respondents and the number 5 on the right side. The side of the scale represents the "powerful agreement" of the respondents. Demographic questions were asked using a single selection scale where respondents mark the option that fits.

Respondents were selected using the convenience sampling method (Schiffman et al. 38). Respondents were selected based on whether their email or other Internet-based contact information was available to the researcher or not. In addition, snowball sampling (Hart, 2007) was used to simplify sampling. For each email or message contained in the survey, participants were asked to share the message or connect with other people they knew.

Table 1 Demographics of Respondents

VARIABLE		FREQUENCY	%
Sex	male	82	53.94
	female	70	46.06
Age	Under 11	0	0
	11-20 years	30	19.74
	21-30 years	81	53.29
	31-40 years	21	13.82
	41-50 years	12	7.89
	More than 50 years	8	5.26
Before Status	Alone	89	58.55
	Married	63	41.45
Monthly Family Income	Less than Rs. 10,000	0	0
	Rs 10,000 to Rs 20,000	32	5.21
	Rs 20,000 to Rs 30,000	82	53.94
	30,000 to 40,000 rupees	22	14.47
	More than Rs 40,000	16	10.54

Sproles (1985) developed a 50-point tool to describe consumer decision-making styles. Using data from 111 female students in two classes at the University of Arizona and using a factor analysis technique, Sproles (1985) found six characteristics of the consumer's decision-making style. He described these characteristics as : (1) perfectionism, (2) knowledge of value, (3) knowledge of the brand, (4) knowledge of the fashion of novelty, (5) saving time to avoid purchases (6) confusion, Decision making for support. In a subsequent study, Sproles and Kendall (1986) developed a comprehensive tool called Consumer Style Inventory (CSI) to measure consumer decision-making styles. The instrument was used with 482 students in 29 cleaning classes at five high schools in Tucson, Arizona. (Ref. Fan, JX, 1998). This instrument measures eight key characteristics for consumer decision-making : perfectionism, brand awareness, fashion knowledge, leisure

knowledge, value for money, impulsivity, confusion about brand choice and brand loyalty / habit (cf . Mitchell, Vincent-Wayne) 2001).

Table 2 Factors Based on EFA

FACTORS	1	2	3	4	5
1. Conscious Price					
1.1 I would like to receive the best offers for the products I have bought	2	16	39	72	23
1.2 I am extremely careful when it comes to getting a good price even the smallest objects	5	20	39	70	18
1.3 I keep comparing the prices of different brands	7	23	67	38	17
1.4 I don't bother to change stores just to feel a little discount	3	38	54	69	15
2. Conscious quality					
2.1 Generally, I try to obtain the best overall quality.	9	13	21	52	64
2.2 Buying a good quality product is very important to me	13	22	65	46	13
2.3 I make a special effort to buy the best quality	8	21	44	71	15
2.4 I always buy the best quality.	10	29	59	44	14
3. Free time					
3.1 I like to buy and enjoy the activity	15	20	69	44	11
3.2 I have a feeling that bouncing is wasting my time	8	27	50	60	16
3.3 I do shopping tours quickly and efficiently.	10	25	47	57	30
4. Conscious novelty					
4.1 It is fun and exciting to buy new products	17	27	60	49	6
4.2 To get some variety, I buy different stores and choose Different brands	7	25	38	69	16
5. Variety search					
5.1 When I use the same brands over and over again, I get tired of them	16	16	60	48	19
5.2 I buy different brands to get some variety	10	20	65	49	15

3.4 Assumptions

The sample size 400 or a larger sample size is ideal for using maximum probability as an estimation method. Only 152 observations were made in this study, which may result in sampling errors and small differences that are not recognized.

[4] Analysis

It is found (as discussed by Bozinoff, 1982: 481 based on the work of Lachman et al, 1979) that consumers often engage in unconscious behavior when making decisions. Actual consumer decision-making processes do not appear to be related and are random in some cases. In such cases, the opportunistic approach could play a role that is not in line with traditional decision-making models. Studies show that many factors such as product, situation, context and previous experience influence the decision-making strategy. Some researchers have concluded that consumers generally do not use analytical decision rules to optimize decisions, but rely on the heuristic that would lead to satisfactory decisions (for example, an acceptable price or a trust mark) and everyone's contribution is unknown. and depend on many factors Consumer decisions are complex. Researchers have explored several aspects of consumer choice. The most common theory of consumer decision was written by Mowen and Minor (2000). The decision-making process consisted of five steps: identify problems, find solutions, evaluate alternatives, select options and evaluate the selection results. The Consumer Style Inventory (CSI) characterizes the consumer selection approach. This model has been used internationally to identify the different purchasing characteristics of consumers.

4.1 Methodology

This research establishes a design of quantitative research and surveys of consumer decision-making styles, which are used for the Consumer Inventory (CSI) to examine consumer buying behavior in the mobile phone market. Even more important is that this study also affects the relationship between age, sex, income, etc. concentrated. Quantitative analysis is an appropriate technique to analyze the data collected from the questionnaire. Statistical analysis is the dominant method in quantitative analysis methods. The Social Science Statistics Package (SPSS) is a well-known statistical software for social and scientific researchers to process data for quantitative research. The alpha coefficients for each factor in this study are shown in Table 1. Cronbach's α (Alpha) is a reliability coefficient.

Table 3 Chronbach's Alpha

Factors	Cronbach's Alpha
Price conscious	885
quality conscious	0.764
leisure	0.721
Conscious news	.728
Variety Search	.707

Questionnaire reliability for inventory consumption styles (CSI) In addition, testing Kaiser-Meyer-Olkin (KMO) was also used in this study to examine whether the data were suitable for use factor analysis in the analysis of data . The value of KMO (0.869) closed at 1. We also use Bartlett's sphericity test.

Table 4 KMO and Bartlett test

Kaiser-Meyer-Olkin measurement of sampling adequacy		.837
Bartlett's sphericity test	Chi squared	10767,601
	df	1257
	S.I.G.	0.000

Table 5 The variance of each factor used in the study.

Factors	1	2	3	4	5	Total
Price conscious	0.6875	26	81.25	191.5	17.25	28.1875
Quality conscious	2.75	24.25	339.6875	77.5	450.6875	4
Leisure	8.666667	2.888889	118.2222	66.66667	69.55556	1,555
Conscious news	16	0	144	121	20.25	0.25
Variety Search	1	1	12:25	0.25	62.88889	1

4.2 Results of the Analysis

As a result of the analysis, it was discovered that some factors are the most appropriate representation of consumer decision-making styles for mobile phones. In addition, consumer style did not differ significantly by gender. This means that the genres do not differ in their style of purchase.

4.3 Discussions

Demographic data shows that most owners have bought. In addition, consumers bought more known brands in the market than “other” less known brands.

4.3.1 Gender Difference

Interestingly, the number of women who buy technological products is as high as that of men. This is a great conclusion for marketers to take advantage of this consumer base. Women will buy cell phones like men. This shows that product design, sales promotion and development cannot ignore female shoppers. It will be a loss for them, since they could not benefit from this customer base. Environmental factors, such as increased employment opportunities and income potential for women, have played an important role in the inclusion of women in the active market and have increased many times.

4.3.2 Differences between the Age Groups

By looking at the number of respondents in the age group of 18 to 24 years, this could be seen as a potential major consumer in the technology products market. Given the trademarks of participants under the age of 18 to 34 years, the investigation revealed that consumers bought famous brands. Therefore, marketing managers must design and develop new products to attract these consumers, focusing more on features and innovations in the market and quality. The younger age group changes their brands when they get better features for a price lower, while such behavior is somewhat unusual in the older group, who prefers to stick to known brands.

4.3.3 Differences in Income

The results showed that respondents in low-income groups tended to own cell phones. That it is possible that the price of mobile phones compared to the past has fallen and has become a popular product. In addition, with the advancement of technology, the price falls and the quality improves. On the other hand, the level of income seemed to influence the level of expenses. Low monthly income participants were more likely to spend more money to buy or plan to buy a cell phone in the future. A cell phone now looks like an investment, and low-income groups want to invest intelligently, and they don't mind buying a slightly expensive device because they rely on quality. The higher income group likes to switch between headphones and keeps at the forefront of technology, it is therefore, may not be aware of the brands.

[5] Conclusion

The objective of this study was to examine consumer decision-making styles and to examine differences in consumer decision-making styles through various demographic time variables. After the study by Sproles and Kendall (1986), attempts were made to outline the decision-making styles of Indian consumers. Sproles and Kendall (1986) identified nine decision styles, while researchers found only four decision styles in the Indian environment in this study. These decision styles are price awareness, quality, relaxation and novelty. In addition, this study shows that the average Indian buyer in our sample was not very aware of the brand, but was very aware of the price and quality. It turns out that individual consumers more price conscious are than married consumers. Indian consumers are full of shopping. They like to go shopping. Young consumers between 11 and 20 years old are the most relaxing when they shop.

5.1 Effects on Management

Information on consumer decision-making style will definitely be useful for retailers targeting Indian markets. As the Indian retail industry is progressing in the current scenario and more and more national and international actors are interested in the emerging retail market in India, understanding Indian buying habits, taking into account their decision-making styles, it can become a competitive

advantage. The categorization of consumers according to their decision-making styles and demographic variables offers significant possibilities to identify and understand consumer segments and address each segment with more specific marketing strategies.

5.2 Limitations and More Research

There are several limitations that require more future research. The study was conducted in New Delhi, India. The results may vary if they are carried out in another part of the district. This is because a country like India has very different geographical, economic, social and cultural areas. This difference is too significant to be ignored. The sample consisted of 152 buyers. The small sample size is also prone to errors. Additional research could address the following important questions: How do cultural factors influence consumer decision-making styles? Do people from different regions of India differ in their decision-making styles? Do people in the city and the country differ in their decision-making styles?

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