

“SURVEY OF LITERATURE ON THE RELATIONSHIP BETWEEN LEARNERS’ MULTIPLE INTELLIGENCES AND ACADEMIC ACHIEVEMENT”

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Abstract

The level of academic achievement of a child at any stage of education depends on the extent to which its natural potentialities are cultivated and developed. Individual differences are reflected in academic progress of students even though all students may be exposed to similar educational environment and facilities in schools. Every student may vary with respect to his/her academic achievement by showing different levels of competence. Such variations may be attributed to a host of factors – innate as well as environmental. Recently cognitive psychologists held that cognition related factors of learners play pivotal role behind their academic achievement. Among the learner related variables of academic achievement, intelligence is thought to be the master factor. Now-a-days, researchers have been taking up studies to identify the profile of multiple intelligences of learners belonging to various educational grades so that it could be nourished in order to optimize their academic achievement. Researchers are also spending much effort to find out whether there exists any relationship between any particular type of intelligence of the learners’ and their level of academic achievement in any particular subject. This paper tries to survey literature on the relationship between the learners’ multiple intelligences and their academic achievement in India and abroad.

Key words: Literature survey, academic achievement, multiple intelligences.

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Why literature survey

Survey of literature is an important section of any research study. It develops the relationship between the existing knowledge and the problem that is being investigated. A collection of research works done by earlier researchers is technically called 'literature'. It is necessary to survey the literature related to the problem that has been taken up for scientific investigation. Survey of literature is a systematic study of the recognized authorities and previous research evidences that help to eliminate duplication of what has been done and provides useful hypotheses and suggestions for further investigation. Studies that show substantial agreement and those that seem to present conflicting conclusions – help to sharpen understanding of existing knowledge in the problem area, provide a background for the research and make the readers aware of the status of the issue. It gives an overview of the published sources on a topic and provides comprehensive knowledge of what has been already said on that topic. The researcher may avoid mistakes committed by other researchers and profit from their experiences. It guides the researcher to identify the knowledge gap if any, define a problem, recognize its significance, select promising data gathering tools and locate sources of data. At the same time, it provides solid data-base of earlier studies that in turn, help to formulate hypotheses, design the present research and discover important variables. Thus literature survey has mainly two-way functions – in one way, it helps identifying the researchable problem; and on the other, it provides appropriate evidences in support of or in contrary to the present research findings.

Academic achievement and multiple intelligences

In today's world of cut-throat competition, quality of academic performance of learners has become the buzz word. The level of academic achievement of a child at any stage of education depends on the extent to which its natural potentialities are cultivated and developed. Naturally, parents, teachers and all other stakeholders of education strive to develop the intellectual capabilities of children and seek to ensure that their potentialities are fully realized. It sometimes appears that the whole system of education revolves round the single goal of enhancing academic achievement of students, though various other outcomes should have also been expected from the system.

No two individuals are alike with respect to their bio-psychological attributes and socio-economic background. Individual differences are reflected in academic progress of students even though all students may be exposed to similar educational environment and facilities in schools. Every student may vary with respect to his/her academic achievement by showing different levels of competence. Such variations may be attributed to a host of factors – innate as well as environmental. Predictors of academic achievement generally consist of cognitive measures, pertaining to mental ability or intelligence and non-cognitive measures, especially personality traits which continue to support the cognitive ability factors. Singh (1976) pointed out that, academic achievement is a very complex variable, a resultant of diverse intellectual and non-intellectual factors, acting and interacting in a variety of ways. Recently cognitive psychologists held that cognition related factors of learners play pivotal role behind their academic achievement. Among the learner related variables of academic achievement, intelligence is thought to be the master factor. Intelligence may be explained as the capacity for knowledge and understanding, especially as applied to the handling of novel situations. There is reason to believe that more intelligent pupils could learn more quickly, retain information for longer period of time and perform better in all academic affairs as compared to less intelligent ones.

The traditional concept of intelligence is based on measurement of IQ which is indicator of the quality of g factor as proposed by Charles Spearman. Recently the concept of multiple intelligences (Gardner, 1983) emerged as a fruit of researches in the field of neuro-cognitive psychology. Gardner's (ibid) research on multiple intelligences has shown that learners' intelligence is pluralistic rather than unitary and that learners of any subject will make greater progress if they are allowed to use their areas of strength to master the subject. He maintained that intelligence is the ability to solve problems or fashion products that are valued in one or more cultural set up. Gardner (1999) proposed eight types of intelligence, each of which operates independently. In his view, intelligences are multiple, including, at a minimum, linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal and naturalist intelligence. Thus a person can be strong or weak in any one type of intelligence, regardless of his/her ability in the other types. The theory of multiple intelligences has deeply influenced the field of educational psychology. It changed teachers' perception of their

students and suggested appropriate methodologies of dealing with them in accordance with their diverse intellectual capabilities. Gardner (2009) hinted at two educational implications of this theory. First, the educators should seriously take into account the individual differences among learners and design teaching- learning environment accordingly. Secondly, educators need to teach the topics in different methodologies to activate multiple intelligences among the learners. Now-a-days, researchers have been taking up studies to identify the profile of multiple intelligences of learners belonging to various educational grades so that it could be nourished in order to optimize their academic achievement. Researchers are also spending much effort to find out whether there exists any relationship between any particular type of intelligence of the learners' and their level of academic achievement in any particular subject.

Related studies on the relationship between the learners' multiple intelligences and their academic achievement

Mojgan, Zeraatian, Hosseini, Naseripour, and Pazooki (2018) attempted to investigate the relationship between multiple intelligences and reading comprehension ability of 157 medical students of Guilan University of Medical Sciences, Iran. Reading comprehension test and Multiple Intelligences Developmental Assessment Scales (MIDAS) were used in this study. Findings indicated that the students possessing interpersonal, linguistic, and logical-mathematical intelligences had higher mean score in reading comprehension.

Kandeel (2016) tried to determine the multiple intelligences patterns of 917 students at King Saud University, Saudi Arabia, and its relationship with the respondents' academic achievement in mathematics. The researcher prepared a multiple intelligences scale to use in this study. The results showed impact of visual, bodily, logical, and sometimes social, musical and naturalist intelligence on the respondents' mathematics achievement.

In a descriptive correlational study, Ahvan, and Pour (2016) attempted to investigate the relationship between multiple intelligences and academic achievement of 270 high school students of Bandar Abbas, Iran. For analysis of collected data, descriptive statistics including mean, standard deviation, Pearson coefficient correlation and regression were used. Findings of this study revealed that logical-mathematical, visual-spatial, verbal-linguistic, intrapersonal,

bodily-kinesthetic, interpersonal and naturalist intelligences had a significant positive relationship with academic achievement of the respondents.

Fayazi-Nasab, and Ghafournia (2016) probed into the probable relation between Iranian language learners' multiple intelligences and reading ability. In this correlational study, the participants were females in the final year of secondary education level in Iran. Using treatment and two questionnaires of motivational strategies and multiple intelligences, the findings demonstrated significant correlation between verbal-linguistic intelligence and reading ability of the respondents.

Islam (2015) in an ex-post facto study, tried to find out the relationship between multiple intelligences and academic achievement in second-language English of 605 higher secondary level students in Murshidabad district in West Bengal, India. Multiple Intelligences Test (MIT), and information schedule of the respondents' academic achievement score were used in this study to collect data. Analysis of data revealed that the dominant intelligences of high achievers were linguistic, logical-mathematical, musical, spatial, interpersonal and intrapersonal.

Saadatmanesh (2014) conducted a study to examine the correlation of multiple intelligences with EFL learners' English achievement in Arak. A sample of 200 high school students, both male and female, was chosen randomly. The instruments used were Multiple Intelligence Developmental Assessment Scales (MIDAS), designed by Shearer in 1996 and Group Embedded Figure Test (GEFT). The results showed relationship between the students' combination of multiple intelligences and their final English achievement scores in general and a relationship between linguistic intelligence and their final English achievement scores in particular.

Razak, and Zaini (2014) attempted to discover the relationship between 60 science stream students' multiple intelligence and their reading competency on linear and non-linear texts in Malaysian University English Test (MUET). Reading Comprehension of Malaysian University English Test (MUET) and Multiple Intelligence Questionnaire were used to collect data. The result showed positive correlation of the total score in MUET reading component as well as in linear text section with music-rhythmic, bodily-kinesthetic and interpersonal intelligence.

Luis, Miriam, Nieto, Otero, and Amengual (2014) examined the relationship between multiple intelligences, academic achievement and motor performance of 480 secondary school children in Baku, Azerbaijan. The revised self-efficacy inventory for multiple intelligences (IAIM-R) and the average results of academic year of the respondents were used in this study. Analysis of results showed that logical-mathematical intelligence had significant relationship with their academic achievement.

Koura, and Al-Hebaishi (2014) aimed to find out the relationship of multiple intelligences with the respondents' achievement in EFL language skill. The sample consisted of 85 third intermediate level students among whom 43 were identified as gifted and 42 were regular students. Three tools were used to collect data: Multiple Intelligence Inventory, Self-efficacy Scale and Language Achievement Test. The results of data analysis revealed that both gifted and regular participants scored higher in interpersonal intelligence than any other intelligence types. Musical intelligence was the least preferred intelligence among both the groups. The study also revealed that there was significant correlation between multiple intelligences and achievement in specific language skills.

Muthusami (2013), in his survey study, tried to find out the relationship between multiple intelligences and achievement in English among high school students in Pudukkottai district, Tamilnadu. Multiple Intelligences Inventory (MII), developed by Armstrong, was applied on a randomly selected sample of 200 male and female students. Analysis of data revealed that a positive relationship existed between multiple intelligences and academic achievement in English among high school students.

In his descriptive study, Hajhashemi (2012) tried to identify the components of MI which were correlated with reading test scores, and to determine the relationship between multiple intelligences and reading proficiency of 128 randomly chosen pre-university students in Tehran. A demographic questionnaire; the Persian version of Mckenzie's MI Inventory; and a standardized reading proficiency test which was selected from retrieved paper-based TOEFL® tests were used to collect data. Results of correlation analysis revealed no significant relationship between the two variables of MI and reading scores of the students. Furthermore, it was revealed

that there was a low significant, negative relationship between musical-rhythmic intelligence and reading test scores.

Foong, Shariffudin, and Mislán (2012) examined the pattern of multiple intelligences, personality traits and critical thinking skills among high achievers in Malaysia. Their study-sample consisted of 1268 students, selected randomly from secondary schools. The Multiple Intelligences Inventory, developed by Walter McKenzie in 1999, was modified and used in this quantitative survey study. Data analysis showed the majority of high achievers having high intrapersonal intelligence, followed by existential, kinesthetic, logical-mathematical, spatial, interpersonal, linguistic, naturalist and musical intelligences. On the other hand, average achievers were found to score highly in interpersonal intelligence.

Mohammadi, Abidin, and Ahmad (2012) conducted a study in Perak, Malaysia, to find out the relationship between multiple intelligences and achievement in learning English of 120 adolescent secondary level urban male students. Both descriptive and inferential methods were used for data analysis. The study revealed that interpersonal intelligence showed the strongest significant positive influence on language achievement, followed by logical-mathematical intelligence. Naturalist intelligence showed significant negative influence on language achievement, followed by linguistic and musical intelligences.

Salehi, and Gerami (2012) conducted a study on 50 engineering students of Sharif University, Iran, to find out which type of multiple intelligences were dominant in them and predictor of their success in English language learning. Multiple Intelligences Inventory was used in this ex-post facto study. Correlational analysis and multiple regressions were used to analyze data. It was revealed that none of the intelligence types correlated in a significant way with achievement scores of the respondents, though the best predictor of their success in English language was musical intelligence, followed by bodily- kinesthetic intelligence.

Zarei and Mohseni (2012) sought to find out the relationship between four types of intelligences – logical-mathematical, interpersonal, linguistic and intrapersonal intelligences – and grammatical and writing accuracy of foreign language learners. A 40-itemed multiple

intelligences questionnaire was administered on 190 university level students in Iran. Multiple regression analysis of data indicated that both intrapersonal and interpersonal intelligences were predictors of the respondents' grammar accuracy and intrapersonal intelligence made a statistically significant contribution to predicting their writing accuracy.

Ghazi, Shahzada, Gilani, Shabbir, and Rashid (2011) led a study in Bannu district, Pakistan, to investigate into the relationship between students' self-perceived multiple intelligences and their academic achievement. Multiple Intelligences Inventory was administered on a sample of 714 1st year students to collect data. A significant correlation was found between students' self-perceived linguistic, logical-mathematical, interpersonal, intrapersonal, naturalist intelligences and their academic achievement. However, the researchers found no significant correlation between the respondents' self-perceived musical intelligence and their academic achievement. Moreover, a weak correlation was found between self-perceived bodily-kinesthetic intelligence and academic achievement of the respondents.

Al-Faoury, Khataybeh, and Al-Sheikh (2011) in their survey study, aimed to identify and rank the differences in multiple intelligences of 1436 students from some private and public universities of Jordan, in respect of some variables like gender, university type (public / private), students' GPA, their specializations and academic year. ANOVA, t test and post hoc tests of data revealed that there were significant differences among the respondents in linguistic and interpersonal intelligence in favour of female respondents. Regarding the relationship between their GPA and types of intelligence, the study revealed that high GPA correlated with a high level of logical-mathematical intelligence of the respondents.

Rivera (2010) conducted a descriptive survey study to determine multiple intelligences and their relationship with academic performance in social philosophy of BEE fourth year students. The study revealed that majority of the students were musically inclined and their age and sex did not affect their multiple intelligences. Besides, their academic performance was affected by the nature of their intelligence.

Ozdilek (2010) aimed at investigating multiple intelligences of sixth grade students to determine the extent to which they affected the respondents' achievement in the topic 'particle model of matter'. The study was conducted with 132 students in Turkey. Results revealed that there were low positive correlation between their achievement in the topic and logical-mathematical, spatial and interpersonal intelligences. It was also found that the respondents with prominent bodily-kinesthetic and naturalist intelligences academically achieved lower than ones with dominant logical-mathematical, spatial and musical intelligences.

Ikiz, and Cakar (2009) investigated the relationship between multiple intelligences and academic achievement of secondary school students in Turkey in a survey study. Participants were 250 students from secondary schools. Data were analyzed with descriptive statistics, t test and ANOVA. It was found that academically low achieving group had lower linguistic, logical-mathematical, interpersonal and intrapersonal intelligences than the high achievers. The study also showed that students involved in music, were doing better than those who were not.

Marasigan (2009) conducted a descriptive survey study to determine the relationship between multiple intelligences and academic performance of high school students of Olivarez College. It was found that a relationship existed between academic performance and multiple intelligences of the respondents. Among the respondents, intrapersonal intelligence was ranked number one, followed by bodily-kinesthetic, spatial, interpersonal, musical, linguistic, logical-mathematical and naturalist intelligences.

Fernando, and Cabrera (2009) sought to determine the extent to which students' multiple intelligences were predictors of their academic performance as reflected in their test scores in Cost Accounting and Financial Management. A descriptive field study was conducted with a purposive sample of 56 respondents in the Philippines. It was found that, average scores of students who perceived to have a great extent of multiple intelligences, got higher grades in the two courses than students who perceived to have a moderate extent of multiple intelligences. The researchers also found significant relationship between logical-mathematical, linguistic and spatial intelligences and their academic performance.

Saricaoglu, and Arikan (2009) investigated into the relationship between students' particular intelligence types and their success in grammar, listening and writing skill in English as a foreign language. Preparatory class students (N=144) participated in the study. Descriptive statistics, t test, correlation analysis and ANOVA were used to analyze data. Significant negative relationships were found between students' test scores in grammar and bodily-kinesthetic, spatial, and intrapersonal intelligences. Besides, the relationship between respondents' musical intelligence and writing skill was found to be positively significant.

Akbari, and Hosseini (2008) conducted a study to investigate into the relationship between use of language learning strategies and multiple intelligences of foreign language learners of English. A sample of 90 respondents participated in this study. Multiple Intelligences Developmental Assessment Scales (MIDAS) was used to assess their multiple intelligences. Their language learning strategy was measured with Strategy use Inventory for Language Learning (SILL). Correlational analysis of data indicated significant relationship between use of language learning strategies and multiple intelligences of the respondents. Musical intelligence, however, did not correlate with any aspect of strategy used, and kinesthetic intelligence correlated only with memory learning strategies.

Razmjoo (2008) conducted a study with 278 male and female students, taking part in Ph.D. entrance examination at Shiraz University, Iran, to find out the relationship between the respondents' multiple intelligences and English language proficiency. A 100-itemed language proficiency test and a 90-itemed multiple intelligences questionnaire were used. Data were analyzed descriptively and inferentially using correlation, regression analysis and independent t test. Results indicated that there was no significant relationship between English language proficiency and combination of intelligences in general and types of intelligences in particular. Similarly, the results revealed no significant difference between male and female participants regarding language proficiency and types of intelligences. Moreover, none of the intelligence types was diagnosed as predictor of English language proficiency.

Cheong, Loong, Cheng, and Rajangam (2007) tried to find out the relationship of multiple intelligences with academic achievements in Accounting I, Economics I and English for College

Studies I of 259 pre-university level students in Malaysia. Convenient sampling was used in this quantitative study. The researchers used Multiple Intelligences Profile – a five point Likert type scale – to collect data. Data were analyzed by factor analysis and multiple linear regressions. Results revealed that, linguistic intelligence played an important role in better academic performance of the respondents in all three subjects. It was also found that there was a positive relationship between English for College Studies I and linguistic and intrapersonal intelligences. However, a negative relationship between naturalist intelligence and performance in the subject was found.

Ahmad, Abu Kasim, and Palaniappan (2006) tried to identify the nature of multiple intelligences of 61 final year dental students of University of Malaya and the relationship between these intelligences and performance in various skill areas of dentistry. Multiple Intelligence Inventory, developed by David Larear in 1991, was used to collect data in this study. It was found that significant correlations existed between the respondents' composite scores and intrapersonal and bodily-kinesthetic intelligences.

McMahon, Rose, and Parks (2004) designed a study to evaluate the reliability of the Teele Inventory of Multiple Intelligences (TIMI) and the relationship between intellectual preferences and reading achievement of 288 fourth grade urban students. Results suggested that the students with higher scores on logical-mathematical intelligence were more likely to demonstrate at or above grade-level reading comprehension scores.

Batulayan (2001) conducted a study to find out relationship between multiple intelligences and academic achievement of 310 sixth grade pupils in Northern Luzon Mission. The study revealed that the respondents' logical-mathematical and intrapersonal intelligence were correlated with their academic achievement. The other five intelligence types were found to have no significant relationship with their academic performances.

Snyder (2000), in a study among graduates and undergraduates at the Central Carolina University, USA, found a positive correlation between linguistic intelligence and the respondents' score for Metropolitan Achievement Test (MAT-7) in Reading. Moreover,

theresearcher found a positive correlation between students' MAT-7 score in mathematics and their logical-mathematical intelligence. It was also revealed that there was a positive correlation between their GPA and bodily-kinesthetic intelligence of the female students.

Discussion and conclusion

The survey of literature discussed above revealed that there has been a trend among researchers in identifying the profile of multiple intelligences of students of different levels of education as well as exploring the relationship between multiple intelligences and academic achievement of learners of different educational grades. This trend has been gaining momentum since the beginning of the 21st century, particularly in the Middle Eastern and South Asian countries like Iran, Malaysia, Jordan, Turkey, Saudi Arabia and Pakistan. With regard to the Indian context, no noteworthy investigation has yet been taken up in exploring the interrelationship between multiple intelligences and academic achievement of learners. A knowledge gap is conspicuous with regard to the establishment of this construct, namely multiple intelligences as cognitive correlates of academic achievement. This knowledge gap will surely draw attention of the researchers and the subsequent findings will help augmenting the teaching-learning process.

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