Chapter - 2

Review of Literature
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REVIEW OF LITERATURE

The review of literature helps the researcher to formulate the theoretical framework for the research study. Review of literature is a body of text that aims to review the critical points of current knowledge on a particular topic. The review comprises of a systematic identification, location and analysis of document containing information related to the research problem.

The most important purpose of reviewing the literature gives an insight on what research work has already been done related to the topic. What are the areas of lacunae, what work can be undertaken, etc., are all determined after the review. Another important aspect of reviewing the literature is to discover research strategies, appropriate data collection approaches, statistical techniques etc., that have or have not been productive in investigation of topics similar to the present study.

In the words of Best and Kahn (1989) “The review of related literature is a valuable guide to define the problem, recognizing its significance, suggesting promising data gathering devices, appropriate study design and sources of data.

This chapter tries to present a summary of the writings of previous research and recognized authorities, which made the research to be familiar with what is already known and what is yet to be known. It is very important for the development of the present studies and to provide empirical evidence.

The purpose of the review of related literature is analyzed by [Good, 1954] as follows:

- To show the evidence clearly available which solves the problem adequately without further investigation and thus to avoid the risk of duplicating.
- To suggest methods of research appropriate to the problem. To provide ideas, theories, explanations or hypothesis valuable in formulating the problem.
- To locate comparative data useful in the interpretation of the results.
- To contribute to the general scholarship of the investigator.
Here an attempt has been made to review the related literature for the present study in three sections. It encompasses the various, research studies related to the

1. Review of Literature Related to the Multiple Intelligences.
2. Review of Literature Related to the Creativity.
3. Review of Literature Related to the Achievement Motivation.

2.1 REVIEW OF LITERATURE RELATED TO THE MULTIPLE INTELLIGENCES

- STUDIES FROM THE FOREIGN COUNTRIES

  June Maker, C., (1987) conducted studies on groups of gifted children, the Discover Projects (Discovering Intellectual Strengths and Capabilities while Observing Varied Ethnic Responses). They found that 119 effective problem solving strategies. They found that an individual might solve certain types of problems in a superior way yet be average or below average with others. This finding fits perfectly with Gardner’s theory and other theories suggesting that every individual has more than one type of intelligence. They also showed evidence that different intelligences can be effectively measured by observing the number and the choice of problem solving strategies an individual uses. They established a fascinating two way relationship. The amount of any given intelligence possessed by an individual can be assessed by observing problem solving skills; and conversely, problem solving skills and overall learning capacity can be improved “by learning through the particular intelligence or “by applying” one’s strongest intelligences.

  Campbell Bruce, (1990) conducted an action research project on 8th grade students to explore student reactions to a multiple intelligences based instructional model. Student behaviours attitudes and abilities to work in non traditional ways such as with music, movement, visual arts and cooperation were studied. The results of the study indicate increased multimodal skills, improved attitudes and behaviour. The follow up of the research findings was continued. An unobserved result of the research programme was the effect it had upon the teacher.

  Krechvsky Maria and Kornhaber Mindy, (1992) surveyed phone interviews with principals from eleven schools that have adopted MI theory, and conducted site visits at nine of these schools. The findings of the study highlights that MI helps schools in several ways. It offers a vocabulary for teachers to use in
discussing children’s strengths and in developing curriculum; it validates the practices of teachers whose work is already synchronous with MI theory; it promotes or justifies education in diverse art forms; and it encourages teachers to work in teams, complementing their own strengths with those of their colleagues. It also encourages schools to devise rich educational experiences for children from diverse backgrounds. Further, the researchers promised an in-depth study of the MI schools, will be undertaken to add to, and validate, these findings.

**Morris, C. and Leblanc, R., (1996)** conducted studies to profile (self – perceived) dominant Multiple intelligence of 34 grade 8 students who were selected on the basis of their performance in (i) school grades (ii) achievement test scores (iii) Judgment from their home room teachers. Verbal protocols were used to compare the self perceived intelligences of students to teacher nominations. Results indicated a strong agreement between teacher nomination and student identification of Gardner’s intelligences. the authors feel that a more detailed studies should be completed before determining the validity and reliability of profiling such intelligences.

**Metteal, Jordan and Harper, (1997)** examined the impact of MI curriculum in a large suburban elementary school. They observed students, surveyed parents, interviews of students, parents, teachers, administrator’s instruments. They obtained three results form these investigations. First, students, teachers and parents were very positive about the concept of multiple intelligences. Second they were positive about school wide implementation, including flow time, activity room and enrichment clusters. Third, classroom implementation of multiple intelligence concepts was uneven across classrooms.

**Kornhaber Mindy, (1999)** and colleagues at Harvard University’s Project zero in the late 1990’s. They studied forty one elementary schools in the United States that had been applying MI theory. They interviewed the principals and 78% of them said that their schools had realised gains on standardized achievement scores and 63% attributed the growth to practices inspired by Multiple intelligence theory”. The other benefits include 78% of the schools reported improved performances by students having learning difficulties, 80% reported improvement in parents participation and 81% reported improved student discipline.
Blacke Rabecca, Fairfield Scot and Paxson Lynne, (1999) conducted a study on “Improving students motivation through the use of co-operative learning and multiple intelligence”. Result indicated that engaging students in co-operative learning, Implementing M.I and providing a variety of students activities improved academic achievement and resulted in a decrease of inappropriate behavior.

Campbell Bruce, (1999) Conducted a training programme for the teachers at the Tibetan Children’s Village, Himalayan Region found that the teachers were highly benefited, they were filled with new conscious realization that they could provide their students with new opportunities to further develop areas of weakness, when they applied M.I. theory, they found that the students quickly began experiencing their lessons in multimodal ways. They also found that, it had the ability to enhance academic achievement, transform teacher beliefs, and improve student motivation and attitudes about learning just as well in a Himalayan village as in the cities and suburbs of America.

Smith Wade, Odhiambo, Edcabeth, I. and Khateeb Habetella, (2000) conducted a study titled “The typologies of successful and unsuccessful in the core subjects of language Arts, Mathematical science and social studies. Using the theory of Multiple Intelligence in a high school environment.” The purpose of the research was using the theory of Multiple Intelligence of academic success of 10th grade students. Results showed that the theory of Multiple Intelligence was found to be unproductive in the areas of students meta cognitive activities, awareness and the and the areas of student academic success under the M.I theory, the more successful students should have had a significantly different typology of meta cognitive awareness and activities across all subject areas from that of unsuccessful student. The typologies were significantly different, the typologies themselves were not the same across differing subject areas.

Synder, R., (2000) made a research study about the learning styles, multiple intelligences and academic achievement of students. The purpose of Synder’s study was to try to prepare an efficient instrument that teachers could easily administer to their classes to learn more about the learning needs of their students. The second purpose was to study the relationship between academic achievement and the learning
styles and multiple intelligences. The most obvious and the strongest result of the study pointed out the fact that this sample of high schools students, in spite of academic data and achievement test data, were primarily tactile/kinesthetic and global learners. At the end of the study, she found that for the male students there is a positive relationship between the students’ grade point average and the categories of preferring working alone, self motivated visual and logical. There is a negative correlation between the students GPA and the categories of preferring sound and preferring to work with others. For the female students, there is a positive correlation between the students GPA and the categories of global learning style, bodily-kinesthetic intelligence and tactile-kinesthetic learning style. In general, the students with stronger GPAs considered themselves to be more self-motivated, persistent and more likely to study alone.

**Wills Joday, Kenny Johnson and Aostre, N., (2001)** conducted a study on the use of multiple intelligence to master multiplication. This study explored the use of multiple intelligence in mastering multiplication. It focused on helping children to use their different intelligence strengths to attain conceptual understanding of multiplication. Result showed that the student developed their own thinking strategies for harder facts and built mastery through practice and problem solving.

**Sharp Patricia and Ashby Doris, (2002)** conducted a study on “Improving students comprehension skills through instructional strategies.” Various instructional methods were used which include thinking skill instruction co-operative groups, multiple intelligence strategies and meta cognition skills. Results showed that there was an increase in students reading comprehension skills.

**Hastey Chris et al., (2002)** Conducted a study on “Improving students interest and achievement in social studies using a multiple intelligence approach” This paper described a programme initiated by teacher investigators to improve academic achievement and interest in social studies, Result showed that interest in social studies increased 11% as evidenced by the students observation check list surveys.
Bednar Janet et al., (2002) Conducted studies on “Improving students motivation and achievement in mathematics through teaching multiple intelligence.” This action research project described strategies for improving students motivation and achievement in mathematics through multiple intelligence, probable cause data indicated that students learnt best when instruction was geared to their multiple intelligences. Improvement was noted in students participation and student enthusiasm during mathematical class.

Shearer C. Branton, (2002) in their study “Using Multiple intelligence assessment to facilitate teacher development” Result indicated that multiple intelligence profile can sensitize teachers to their own weakness and help them empathize with students who are struggling. Teachers were able to understand the multiple intelligence profile as a description narrative of intellectual and creative life.

Thomas Hoer, (2002) the principal of New City School, Massachutes after experimenting in his school found that the kids were more likely to find learning fun and less likely to find school boring. Discipline problems, tend to disappear when students are exited about learning and finding success and he can readily extoc the virtues of Multiple Intelligences after experimenting in his school.

Katz Mirenda and Auerbach, (2002), investigated the engaged behavior and social interactions of 10 students with developmental disabilities in two types of inclusive classrooms which are the one ascribed to MI pedagogy, instruction, and assessment and the one that used no specific educational theory or approach to instruction. They found at the end of the study that the experiences of the participants in both typical and MI-inclusive classrooms were more alike than different. They observed more frequently the participants in the MI classroom to be engaged in multiple response activities. They observed the participants in MI classrooms spent more time interacting with their typical peers, whereas those in typical classrooms spent more time interacting with adults during 1:1 activities that were different from those of their peers.
Gögebakan, (2003) investigated the effect of gender and grade level of the students on their multiple intelligences in her master thesis at METU. The study was conducted at Middle East Technical University Development Foundation School in the spring of the 2001-2002 academic-years with classes of first, third, fifth and eight grade levels. She applied Pictorial Teele Inventory for Multiple Intelligences on 321 students and analyzed the results. Results of her study showed that students’ multiple intelligences showed variety according to their grade levels. For example, the students at the first grade level demonstrated strong preference for linguistic intelligence and logical-mathematical intelligence in the first grade and the two intelligences were followed by spatial intelligence, and bodily kinesthetic intelligence. While the third grade students’ most dominant intelligences preferences were interpersonal, spatial, logical-mathematical, and linguistic intelligence, the fifth and eight grade students’ preferences were interpersonal intelligence bodily-kinesthetic intelligence, musical intelligence, and spatial intelligence.

Michael, B. and Morris, C., (2003) conducted “A study on learning style and Gardener’s intelligence.” The sample consisted of three hundred and forty students from a secondary level business education a variety of web based international methods are utilized through out the school year and the students overall performance in course was monitored. The result showed that there is an association between learning styles and Gardner’s intelligence.

Mabuva James, (2003) conducted a study on “Implementation of multiple intelligence theory in the 21st century teaching and learning environments”. The study focused on different types of intelligences, historical developments of multiple intelligence and application of M.I into the classroom examination. The study finds out that the traditional ways of teaching are giving ways to new class-room examination and application of the multiple intelligence. It also suggested that the process of employing the multiple intelligence teaching should also consider the cognition, language and culture of each student.

Rideal Jennifer, Tomaszwat Tracey and Weaker Dala, (2003) conducted a study on “Improving students academic reading achievement through the use of multiple intelligence teaching strategies the sample consisted of 90 students the age
group ranged between 10 to 11 of fifth grade. The study found that, through the use of multiple intelligences, there was an increase in reading comprehension and skill mastery that built a stronger, more confident and motivated reader. Students showed a marked improvement in reading comprehension motivation and student engagement.

Chan, (2003) made an investigation of six hundred and thirty nine Chinese primary and secondary gifted students on their adjustment problems using the revised Student Adjustment Problems Inventory (SAPI). He concluded that less salient was the problem of poor interpersonal relationships. According to the findings, Chan stated that students reported highest scores on the two personal intelligences, followed by the conventional verbal and mathematical intelligences and musical intelligence, and they scored lowest on the visual-spatial, naturalist, and bodily-kinesthetic intelligences. He found that different multiple intelligences related differently to different adjustment problems. According to Chan, perhaps more compelling were the findings that conventional intelligences (verbal and mathematical intelligences) did have an effect on problems related to Intense Involvement and Unchallenging Schoolwork, whereas personal intelligences (intrapersonal and interpersonal) could help reduce vulnerability to problems related to Poor Interpersonal Relationships.

Asçi, (2003) investigated the effects of multiple intelligences based instruction on ninth grade students ecology achievement, their attitudes toward ecology, and their multiple intelligences. She made an experimental study which consists of two groups called experimental group and control group. She applied Ecology Achievement Test, Ecology Attitude Scale and Multiple Intelligences Inventory. She analyzed the results with MANCOVA and concluded that the multiple intelligences based instruction is more effective than the traditional instruction in terms of achievement and multiple intelligences; however she found no significant results between the two groups.

Chen, K., Wang, X., Xu, J. and Wu, S.K.Y., (2003) this article introduces an experimental study for enhancing the creative and thinking ability of regular 5th grade students by applying the Multiple Intelligence Theory to practical learning activities. Initially, teachers of 10 classes from Wu-Hsing National Primary School, Taipei, were instructed how to apply the theory to real teaching processes. Next, these teachers conducted an educational experiment for one semester on 197 year 5 students. 130
students were randomly selected from the experimental group and compared with students that had not participated. There were no significant differences between groups in creative thinking ability and progress according to the Williams Creativity Assessment Packet. Additionally, there were no significant differences between groups in performance on fluency, divergence, flexibility, elaboration, originality and naming tasks. A discussion and explanation of these results is given.

**Barrington Erine, (2004)** in their study “How multiple intelligence can help in teaching to students diversity in higher education” found that multiple intelligence could be a vehicle by which the demands of the society are met. She also reported that the academicians who attended workshops on multiple intelligence viewed the ideas as useful pedagogical tools for higher education, especially with regard to the diversity of students.

**Loori (2005)** investigated the differences in intelligence preferences of male and female students learning English as a second language at higher institutions in the United States of America. There were 90 international students registered at ESL centers at the three American University. The results of Loori’s study showed significant differences between males’ and females’ preferences of intelligences. According to the results, male students preferred learning activities involving logical and mathematical intelligence, whereas female students preferred learning activities involving intrapersonal intelligence. In addition, the most preferred intelligence was interpersonal intelligence, second was logical mathematical, the third highest was linguistic and the forth one was bodily-kinesthetic; the least preferred one was intrapersonal intelligence.

**Persia Celine, (2005)** conducted an experimental study at the secondary school level titled “A study strategy based on multiple intelligence. A powerful tool at secondary level” The sample size was limited to 100. The study showed that the lessons based on multiple intelligence theory were more effective than the ones based on the traditional text books.

**Shearer C. Branton, (2006)** conducted a study that describes the relationship between an assessment for the multiple intelligences and emotional intelligence. Participants were 31 university undergraduates in a career exploration class and 54 doctoral education adults. Correlations ranged from very low to moderate in a pattern
that is theoretically consistent with multiple intelligences theory. It was concluded that emotional competence is appropriately identified as a subset of the Intrapersonal and Interpersonal intelligences.

Shariffudin, R. S. and Ta’Zim J. D., (2007) the research study examines the Multiple Intelligences pattern among the high achievers and the normal student. This research compares between the high achievers and the normal students with respect to their preferences of learning style. The respondents comprised 150 normal students and 160 high achievers from secondary schools around Sarawak. The results showed that the normal students posses the following intelligences: Interpersonal> Bodily/Kinesthetic > Musical/Rhythmic > Visual/Spatial> Verbal/Linguistic = Logical/Mathematical > Intrapersonal> Naturalist. Whilst for high achievers posses the following intelligences: Interpersonal> Logical/Mathematical > Intrapersonal> Visual/Spatial> Verbal/Linguistic> Naturalist> Musical/Rhythmic> Bodily/Kinesthetic. Based on these result, a theoretical framework was proposed to develop a software to match students learning styles (Multiple Intelligence) with computer and web-based learning environments. Through an awareness of preferred learning styles and environments, more effective learning environments can be set up to assist students in their learning.

Nasser, R., Singhal, S. and Abouchedid, K., (2008) conducted a study on a sample of 648 Lebanese and 252 Indian students estimated their multiple intelligences based on Gardner’s conceptualization. Males rated on the bodily kinesthetic component higher than females while females estimated their verbal and intrapersonal intelligence higher than males. Differences appeared between Indian and Lebanese samples on the cognitive components, namely, verbal, spatial and logical abilities. Using the educational level of the parent as a covariate, significant differences were found between the Indian and Lebanese sample on verbal, spatial, and logical abilities. Interaction effects of gender and nationality were observed on the logical component. While Lebanese males rated the logical component higher than the Lebanese females, Indian females rated the logical component higher than their male counterparts but lower than the male and female Lebanese students.
Razmjoo, (2008) in their study examined the strength of the relationship between language proficiency in English and the 9 types of intelligences. As such, the objectives of this study were three-folded. The research tests tools consisted of a 100-item language proficiency test and a 90-item multiple intelligences questionnaire were distributed among 278 male and female Iranians taking part in the Ph.D. Entrance exam to Shiraz University. The data gathered were analyzed descriptively utilizing central tendency measures (mean and standard deviation) and inferentially using correlation, regression analysis and independent t-test. The results indicated that there is no significant relationship between language proficiency and the combination of intelligences in general and the 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 the predictor for language proficiency. The results of this investigation point to no significant relationship between multiple intelligences and English language proficiency in the Iranian context.

Berbaum, K. A., (2009) the purpose of this multiple case study was to describe and evaluate the experience of 5 general education teachers from a northeastern urban middle school as they integrated differentiated instruction with students who have specific learning disabilities. Initiating differentiated instruction that incorporates multiple intelligence theory was one strategy to facilitate academic success of students with specific learning disabilities. The results showed that educator interpersonal skills effected willingness to execute differentiated instruction. Process and assessment differentiation were typically utilized to diversify instruction. Educators experienced challenges due to lack of differentiated instruction training, lack of collaborative planning time, and a perceived lack of motivation in students. Differentiated instruction seemed to facilitate general educators' ability to meet the needs of students with learning disabilities in the classroom. This research has implications for reducing marginalization of students with learning disabilities and facilitating their long term success beyond the classroom.

Naoe, D. G., (2010) this study identified the multiple intelligences of the Grade V pupils of David Elementary School through instructional process which integrates the Multiple Intelligences Theory that helped the learners recognize the importance of discovering and awakening their latent intelligences. Gathered
information from the respondents, namely: fifteen (15) parents, four (4) teachers and fifteen (15) pupils were processed and analyzed using frequency counts, percentages, weighted mean, and t-test. The pupils who attended the MI class were found to possess all the eight intelligences in varied degrees. Bodily-kinesthetic intelligence, as perceived by the pupils, appeared to be their strongest intelligence. It was also found out that among the three important subjects that the researcher tested namely Science, English, and Math, the pupil respondents appeared to be naturalists. Both the parent and teacher groups had almost the same perception with regard to the children’s pupils’ intelligences. However, it was in the intrapersonal intelligence that the two adult groups differed significantly in their perception. Except for this area of intelligence, the null hypothesis that there is no significant difference between the parents’ and the teachers’ perception on the different multiple intelligences of the pupils is accepted. The activities that integrate the MI theory were most preferred by the pupils, which gave them relatively high scores in the posttest.

Almeida, S., Prieto, M. D., Ferreira, A. I., Bermejo, M. R., Ferrando, M. and Ferrándiz, C., (2010) in their study a battery of General and Differential Aptitudes (BADyG: reasoning, memory, verbal aptitude, numerical aptitude and spatial aptitude) and a set of Gardner's multiple intelligence assessment tasks (linguistic, logical, visual/spatial, bodily-kinesthetic, naturalistic and musical intelligences) were administered to 294 children aged 5 to 7. The confirmatory factor analysis points out the absence of a common general factor considering both batteries, indicating instead the existence of two general factors, which gather the tests that encompass them. Also, these two general factors correspond to traditional and multiple intelligence assessments and show a statistically moderate correlation between them. These results challenge Gardner's original position on refusing a general factor of intelligence, especially when considering the cognitive dimensions measured which do not coincide with the more traditional tests of intelligence.

Yi, H. Y., Sulaiman, T. and Baki R., (2011) Developments and studies in the field of intelligence and creativity had been widely popularized by educators, practitioners and psychologists. Many studies had been conducted in examining the relationship between intelligence and creativity where contradicting findings were reported. The types or degree of intelligences varies among individuals and is not a
fixed attribute which is similar with the nature of creativity. Both intelligence and creativity could be developed in varying degrees throughout the development of an individual. Therefore, it is the objective of this study to examine the relationship between creativity and intelligence. This study adopted a descriptive survey method where a set of questionnaire was used for the purpose of data collection in determining the relationship between the two variables. A total of 1040 randomly selected students which consisted of both male and female students were involved in the study. Research findings showed that overall, there was a significant and positive relationship between multiple intelligences and creativity ($r=0.648$). Research findings also showed that students from both gender possessed high intelligence in common domains, namely interpersonal ($M=3.795$, $SD=0.61$), followed by intrapersonal ($M=3.656$, $SD=0.628$) and musical ($M=3.648$, $SD=0.863$) as well as similar characteristics of creativity in two constructs (imagination and fantasy, and playfulness). To conclude, it is important to identify students’ intelligence profile as well as their creativity level according to domains.

Khataybeh, A. and Al-Sheikh, (2011) investigated different intelligence types among Jordanian students at different public and private universities in Jordan. This study has used survey as an instrument of collecting data. The study sample consisted of (1436) students. The students estimated their own IQ scores on each of Gardner's 7 multiple intelligences: logical-mathematical IQ, musical IQ, interpersonal IQ, Kinesthetic IQ, Intra-personal IQ, Linguistic IQ and Spatial IQ, t-test indicated that interpersonal intelligence is the highest and the most common intelligence among Jordanian students. Following are Intra-personal, Kinesthetic, Linguistic, Spatial, logical- mathematical, and musical, respectively. There were significant differences among Jordanian students in the linguistic and interpersonal intelligence in favor of the females. There were significant differences in the logical intelligences in favor of the governmental universities. There were no significant differences in the multiple intelligences that can be attributed to the averages of the students. There were significant differences in the musical intelligence in favor of the graduates.

Gardner, H. and Hillary, (2011) the authors decided to make multiple intelligences (MI)-inspired "activity menus" a regular part of her ESOL/Civics classes. The approach has been appealing because MI-inspired activity menus provide
an engaging way for students with multiple levels of ability to summarize what they have learned. Activity menus allow the teacher to model civic participation by creating a more student-centered classroom; they allow students to take responsibility for their own learning; and their use fosters instructional strategies--such as active learning, community building, and self-efficacy--that have been found to improve student persistence.

**Abdorreza, T. and Hoda D., (2011)** conducted studies on increasing attention paid to learner-centered pedagogy. This study explores EFL learners' perceived use of language learning strategies across various intelligence types as reflected in Gardner's Multiple Intelligences Theory (1983). Among Ninety students the findings of the study revealed that intelligence did not significantly affect the overall strategy use of the participants. All types of intelligence fell within the "medium" user of LLSs. However, participants of verbal linguistic type were found to be higher in terms of their strategy use and visual-spatial students were the lowest strategy users overall. In addition, participants of verbal-linguistic type were found to be higher users of cognitive strategies. In terms of metacognitive strategies, verbal-linguistic, bodily-kinesthetic, interpersonal, intrapersonal and naturalist were found to be higher than logical-mathematical, visual-spatial and musical-rhythmic types. Visual-spatial learners were also found to be lower in terms of their use of social strategies.

**Shazda, G. et al., (2011)** in their research analyzed the multiple intelligence levels of academies of physical education and sports students according to some demographic factors. The results show that multiple intelligence levels between the sexes : significant differences were found in the subscales of visual and rhythmic intelligence. As for the results of the multiple intelligence levels between sections, the averages of multiple intelligences at inter-departmental levels are not statistically significant. The results obtained show that a significant correlation was found between students self-perceived, Logical – Mathematical Intelligence, Musical Intelligence and their Parent’s Education and non-significant correlation was found between students self perceived Bodily-Kinesthetic, Interpersonal, Intrapersonal, Naturalistic Intelligence and Parents Education. There was a negative correlation between students self-perceived Intelligence and their parents education.
Narli, S., Kemal, O. and Huseyin, A., (2011) the present study aims to identify the relationship between individuals multiple intelligence areas and their learning styles with mathematical clarity. Multiple intelligence areas and learning styles of 243 mathematics prospective teachers studying at a state university were identified using the "Multiple Intelligence Inventory for Educators" developed by Armstrong and the "Learning Styles Scale" developed by Kolb. Second, the data was appropriated for rough set analysis and they identified potential learning styles that a student can have based on the learning style s/he already has. Certain degrees of the learning style sets were [alpha] [subscript R] (D) [congruent to] 0.717, [alpha] [subscript R] (C) [congruent to] 0.618, [alpha] [subscript R] (AS) [congruent to] 0.699, [alpha] [subscript R] (AC) [congruent to] 0.461, and these sets were found to be rough sets. Finally, decision rules were identified for multiple intelligences and learning styles.

McFartane and Donovan, (2012) their study examines the theory of Multiple Intelligences (MI) as the most viable and effective platform for 21st century educational and instructional methodologies based on the understanding of the value of diversity in today's classrooms and educational institutions, the author sees the value of MI theory as broad enough to facilitate 21st century understanding of education and intelligence in so much as diversity and technology have fueled changes in the definitions and requirements of individuals with regard to pedagogy. In putting forth a strong argument of multiple intelligences (MI) being a strong platform for effective educational and instructional methodologies in 21st century classrooms and schools, the author also examines opposing views and attempts to counteract as such with supporting literature, examples, and ideas.

IbnianAla’, K. S. S. and Hadban, D., (2013) this study aimed at investigating implications the Multiple Intelligences (MI) theory in English Language Teaching (ELT) field. The study attempted to answer the following questions: What are the main features of the multi intelligence theory? What are the implications of the multi intelligence theory in English Language Teaching (ELT) field? Results of the study showed that in EFL class, it is possible to motivate learners by making use of the nine different types of intelligence described by Gardner (1983, 1999) as well as by activating multiple ways of meaning-making through the use of tasks relating to the different intelligences.
• STUDIES FROM INDIA

Akbas, A., (2004) made a study called “The Effects of Multiple Intelligences Based Instruction on Six Graders’ Science Achievement and Attitudes toward Science”. His study was an experimental type study conducted in the 2nd term of 2002-2003 educational years with six grade students of METU Ankara College Primary School and lasted for three weeks. He used science achievement test and science attitude scale. At the end of the study, he justified the idea that the multiple intelligences based instruction was more effective than the traditional instruction. However, the statistical analysis indicated no significant result about students’ attitudes toward science.

Thomas, Deepa (2005) conducted a study on the relation between learning styles and multiple intelligence among the students of ninth standard. The result showed that there is an association between learning styles and multiple intelligence among the students.

Kumbar Rashmi, (2006) in their study “Application of Howard Gardener’s multiple intelligence theory for the effective use of library resources by K-2 students an experimental model”. This research involves the children and parents their observation is that the children look forward for the library periods in the school quite enthusiastically. The results show that multiple intelligence theory helps in developing skills to analyses a resource logically and use it effectively to increase the level of success of the students.

Watte, S., (2010) in their study aimed at investigating the ways the parents perceive their ward related to different intelligences. Sample consisted of 100 high schoolers whose parents gave rating based on their observations regarding intelligences of their ward. A Multiple Intelligence (MI) rating scale based on activities, related to these intelligences was used for the purpose. Summated ratings on eight areas were subjected to correlation analysis. Almost all the correlations were found to be significantly high, except that between Linguistic and Interpersonal. Significant high correlations between Linguistic and Intrapersonal. Logical-Mathematical appeared to be least correlated with others. Some probing into various such relationships is discussed to point new direction in case of parents’ perception of multiple intelligences among their wards.
Kumar, R. R. and Biju, G., (2012) conducted studies on a sample of 300 students from grade 9 and grade 10 of two high schools in Arba Minch, Ethiopia. Students were found to exhibit more of interpersonal, intrapersonal, logical and verbal intelligence. The usage of visual-spatial, bodily-kinesthetic, and musical intelligent strategies were low. The research also revealed that boys exhibit more multiple intelligent strategies than female students.

2.2. REVIEW OF LITERATURE RELATED TO CREATIVITY

- STUDIES FROM THE FOREIGN COUNTRIES

Brar, (1986) found the influence of intelligence was significant on the performance of students. It was also found that high creative girls and low creative girls scored higher than high creative boys and low creative boys respectively.

Heath, (1988) conducted a study to investigate the relationship between creativity and communicative competence strategies. The result indicates filial acquisition of second languages correlates significantly with creative development.

Baer, M., Oldham, G. R., Hollingshead, and Jacobsohn, G. C., (2010) This study examined the possibility that sibling demographic differences (i.e., age and sex differences between the focal individual and his or her siblings) and sibling size (i.e., number of children in the focal individual’s family) moderate the relation between an individual’s birth order and his or her creativity. A total of 359 undergraduates described their family background and then were assigned to small teams to work on 8 problem-solving tasks. Each individual’s contributions to the tasks were evaluated for creativity by his or her teammates. Results showed that firstborns with large sibling groups were more creative when they had relatively more siblings close in age or of the opposite sex. We discuss the implications of the results for future research on birth order and creativity.

Al-Qaisy, L. M. and Turki, J., (2011) this study aims to determine the levels and relationships of creativity self-concept and achievement motivation of adolescents. Among a sample of 800 adolescents in the age group of 16-18 years
studying in the 10th, 11th and 12th standard in the higher secondary schools of both private and state syllabus in the geographical area of Amman city are selected as a randomized cluster sample of the study from the population. The results indicate that self-concept and achievement motivation of high creative male and female adolescents is less than the low creative male and female adolescents. Self-concept and achievement motivation of low creative male and female adolescents is less than the average and is greater than the high creative male and female adolescents. Additionally, the results indicate that achievement motivation of the high self-concept of the male and female adolescents is greater than the average self-concept and is greater than the low self-concept. It is also indicate that the achievement motivation of low average and high self-concept of private syllabus and state syllabus adolescents that the achievement motivations of the high self-concept total adolescents is less than the average self-concept and is greater than the low self-concept. And the correlation between the creativity with their physical self, social self, temperament self, educational self, moral self intellectual self and total self-concept, of sub –samples are not significant.

Vanessa, S. G., (2011) as evidenced by countless studies, time spent engaging in the arts has lasting effects on children of all ages, not only instilling in them a sense of creativity and innovation, but also providing them the skills needed to compete in a global economy. The President's Committee found that the outcomes derived from high-quality arts education fall into four categories: (1) Student achievement; (2) Motivation and engagement; (3) Creative thinking; and (4) Social competencies. Higher achievement, engagement, creativity, and self-confidence are all linked to student involvement in the arts.

Ruben, G., Lackey and Knigth, T., (2011) one college calls its student newspaper the "Eagle Eye" which could connote that college students have sharp vision and maintain a keen watchfulness. Further along this line, at one historically Black college a basic course in special education is required for undergraduate education candidates across majors. In the course, the candidates were requested to "think of a person in school or society that they considered gifted" and write a brief synopsis on the individual. They listed many persons that had not been formally identified as gifted. The list included the no-study test passer, multi-talented who
stutters, excellent memory kid, four year old road sign reader, know-all with autism, and hands-on expert. This manuscript examines some key issues in gifted education. It also informs the education profession that perhaps a closer look is needed at who might be considered gifted and that the eyes of college students may help in the identification process.

Clarke, A. and Cripps, P., (2012) have explored such a creative think tank by examining a particular lecturer's pedagogical approach. They discuss how and why the lecturer designs activities in a way that draws on multiple intelligences to stimulate learning and foster creativity. Using narratives, they have analyzed this particular curriculum through the lens of multiple intelligence theory and explore how the pedagogical approach develops the whole person. They found that by attending to relationships and focusing on a plurality of intellect this particular curriculum and pedagogy promotes transformative learning in students studying fine art.

Cleanthous, E., Pantazi, D. P., Christou, C., Kontoyianni, K. and Kattou, M. this study explores the differences mathematical abilities of high IQ and low creativity students (HIQLC) and with low IQ and high creativity (LIQHC) students. The two groups were also compared to the abilities of students with high IQ and high creativity (HIQHC). A mathematics test, a mathematical creativity test and an IQ test (WASI) were administrated to 359 elementary school students aged 9-12 years old. The results indicated that HIQHC students had the highest scores and were able to explain their answers. The results also revealed that HIQHC and HIQLC students had statistically significant differences in every aspect of the mathematics test. The three groups did not have any statistically significant differences among them in the mathematical causal tasks.

- STUDIES FROM INDIA

Gokhar, (1974) found out the relationship of creativity to age and sex, the findings revealed sex has not accounted for significant contribution to the variance resulting out of the creativity scores except for one case where girls significantly scored higher than boys in the X grade on flexibility.
Badrinath and Satyanarayan, (1976) found out that- Boys scored significantly higher than the girls in originality and Total verbal creativity. The male students were significantly higher than female students in fluency and originality dimensions of creativity.

Bharadwaj, R. L., (1978) conducted a study on vocational interests as functions of creativity component, intelligence and S.E.S among college going students. The findings of this study were creative components, creativity products, fluency, flexibility, originality were interest denoting in bright adolescents, but remained prominently promoting in less intelligence, consistently denoted vocational interests on the high level of S.E.S, it was more interest promoting in less creative and less interest promoting in high creative adolescents.

Sharma, K., (1982) conducted a study on "Factors related to creativity". The main findings were the Boys were more creative as compared to girls. The Creativity was higher in Nuclear family, but not in joint family. The Creativity was significantly higher in high I.Q group in comparison with middle and low groups.

Srivastava, A. K. and Raniaswamy, A., (1986) conducted "A study on the effect of medium of Instruction S.E.S and sex on academic achievement, Intelligence and creativity" The findings were - As regarding creativity, the main effects of MI, SES and sex on fluency, flexibility, originality and elaboration were significant on each of the three components. Boys had scored higher in all the four dimensions than girls except in the case of low SES girls in the same medium group and middle SES girls in the originality.

Gakhar, Paramjit and Pushpa, (1989) found that there was significant difference in fluency, flexibility and total creativity among students of high, average and low intelligence groups and there was no significant difference in originality among students of high, average and low intelligence groups.

Palaniappan, A. K., (1992) the relationship between creativity and academic achievement 497 Form Four Malaysian students. Intelligence was measured using Cattel’s Culture Fair Intelligence Tests and Creativity was measured using Torrance
Tests of Creative Thinking. The mean academic achievement scores of these four groups were compared. One-way ANOVA indicate that there are significant cant differences in the mean academic achievement scores among the four groups. There were significant differences between High IQ – Low Creative and Low IQ – Low Creative groups as well as between High IQ – High Creative and Low IQ – Low Creative groups. These findings are only to be expected as the difference in IQ between these pairs of groups are 48 and 50 points respectively. However, there are no significant differences in academic achievement between the High IQ - Low Creative and Low IQ - High Creative groups. Although the Low IQ – High Creative group had a mean IQ 46 points lower than the High IQ – Low Creative group, the former appears to be able to compensate for this with their higher level of creativity. Another significant finding is the equivalent academic achievement levels of the High IQ – High Creativity and the Low IQ – High Creativity groups although the latter has a mean IQ 50 points lower than the former group.

Krishnan, S., (1993) conducted a study on "Creativity in relation to some selected variables. The findings showed that the subjects of the different types of management are found to differ significantly in their creative performance subjects belonging to the private types of management of school have invariably secured the maximum mean scores and those of the municipal types of management have secured the minimum mean scores. In economical correlations creativity and intelligence are found to be Positively and significantly correlated with each other. Verbal creativity seems to be significant and positively correlated with all the three types of intelligence figural creativity is correlated positively and significantly with composite intelligence.

Sharma, D. and Kumar G., (2007) in this study an attempt has been made to compare creatively gifted learning-disabled with academically gifted children in relation to personality traits. This relatively unexplored research problem in addition to others provide the basis for present investigation because a knowledge of the characteristics which differentiate between creatively gifted learning-disabled and academically gifted students have major importance in the development of curriculum and counselling. Hence, this study was undertaken to study systematically, personality traits of creatively gifted learning-disabled and academically gifted children.
Patel, K. P., (2009) conducted a study to know the Creative thinking and effect of Gender, Area and Locale of school on Creative thinking. Total 1200 students were selected from the higher secondary and secondary schools. On the basis of the scores obtained by the students mean, standard deviation and t-values were calculated. Significant difference of Locale of the school was found on Creative Thinking.

Siddiqui Saima, (2011) conducted a study to investigate differences for boys and girls in terms of the relation between different aspects of creativity. A sample of 50 boys and 50 girls’ studying in two secondary schools of Aligarh city was randomly selected. Torrance Test of Creative thinking (Verbal form A) designed by E. P. Torrance (1968) was used. Mean S.D.S and t-test were calculated to analyses the data. The findings reveal that boys do not differ significantly in all the variables of verbal creativity, except the measures of originality from the girls.

Ravi Kant, (2012) the present investigation was undertaken to study creativity in relation to TV viewing habits of secondary school students. The sample consists of 400 secondary school students of Rampur city. Verbal test of creativity and TV viewing habits questionnaire were used for this investigation. The result of this study shows that on some behalf TV viewing is negatively related to creativity but overall TV viewing is positively related to creativity of secondary school students. Students viewed a variety of programs on TV whether they were low achievers or high achievers gained knowledge and information through TV. In this study relationship between creativity and TV viewing was positive overall but non significant

Sharma, R. and Rai, R., (2012) this paper has emphases on various types Children specially juvenile delinquent Children often test the limits and boundaries set by their parents and other authority figures. Among adolescents some rebelliousness and experimentation is common. However a few children consistently participate in problematic behaviors that negatively affect their family academic social and personal functioning. This concept is in harmony with the modern democratic ideas which seek optimum development by providing suitable educational facilities to all children - the gifted; the emotionally, socially, educationally, maladjusted and physically & intellectually handicapped. I have taken special issues which are related to Juvenile delinquent children in society. In this study aims to find
out difference among Juvenile delinquent children in relation to creativity. I have
selected 80 sample of Juvenile delinquent children for Merrut and out of 80 (40 Boys
and 40 Girls ) were sample for the study The result showed that both Boys and Girls
of Juvenile delinquent children having difference in the respect of Creativity, Fluency
and Flexibly but author respect of Originality dimension, they don”t have difference
within groups. It means we can say that Girls Juvenile delinquent children have more
Creative level than Boys Juvenile delinquent children of my study. So that we must be
improve creative level of Boys Juvenile delinquent children with the help of various
activities game and curriculum.

Jha, A. S., (2012) the objective of their study comprised to know the levels of
creativity, intelligence, achievement motivation, anxiety and self-concept of the high
school students and to know the effect of their intelligence, achievement motivation,
anxiety, gender, self concept, and area on creativity. The study was limited to Gujarati
medium high school students of Ahmedabad district. A sample of 620 high school
students was selected by cluster multistage sampling. The standardised tools available
in Gujarati and survey method were used to collect the data. The analysis was
conducted by correlation, and F-test. The results depicted difference in creativity of
the high school students of Ahmedabad with different levels of intelligence, self
concept and anxiety.

Himani Bhattacharya, (2012) in their study investigates the relationship
between Non-verbal thinking of Creativity and Intelligence of school students. 80
students of secondary schools (mean age 13.5 years) were sampled to verify the
relationship. Baquer Mehdi’s test of creative thinking and Raven's coloured
progressive matric test were used to collect data. It is found that the two groups
differed significantly in intelligences test but there is no significant difference in
creative thinking.

Vijaykumar and Govindaraju, (2012) in their study aims at examining the
relationship between Creativity and Emotional Intelligence of high school students.
The sample consists of 400 high school students drawn from Bangalore region during
the academic year 2007-08. Results revealed that there is a significant gender
difference in Creativity (Verbal &Non- verbal) but no significant gender difference in
Emotional Intelligence. Girls’ students possess significant relationship in creativity
and Emotional Intelligence; hence, there is a positive relationship between creativity and emotional intelligence. This study discusses implications for teachers, administrators and student’s community in order to strengthen the emotional Intelligence among adolescents in turn it is indirectly tuning their divergent and convergent thinking in a right manner so that creativity can be fostered to the fullest of their ability.

**Saha B., (2012)** conducted a study to provide information and relation between creativity and socio-economic status in West Bengal, India. Data was collected through TTCT for creativity and Socio-Economic Status Scale of Kuppuswamy was used for SES of 100 secondary students of Birbhum District in West Bengal, who were selected randomly. The result revealed that 1) creativity is positively related with socio-economic status, 2) boys and girls students do not differ significantly in their creativity, 3) boys and girls students do not differ significantly with regard to socio-economic status.

**Anwar, M. N., Rasool, S. S. and Haq, R., (2012)** they studied the differences in the creative thinking abilities between students with high and low levels of academic achievements. A total number of 208 secondary school students participated in this study. Two groups were formulated i.e., high achievers (n=104) and low achievers (n=104). Analysis of data was done using t-test for independent sample to estimate the comparison at 0.05 levels. A self developed instrument was used to measure the creative thinking potential. Results of the study revealed that there was no difference between high achievers and low achievers in terms of creative thinking abilities. However, girls and the students belonging to urban areas were found better in their creative thinking.

**Pathak Nirupama, (2013)** conducted a study at Jabalpur in order to investigate the difference in relation between different aspects of verbal creativity of mathematical gifted boys and girls. The sample includes 158 boys and 119 girls, randomly selected under graduate students of the department of mathematics of various higher educational institutes located at Jabalpur city. These students were further evaluated by using three different tests of creativity and mental ability. The mean, standard deviation and student t-test were performed to analyze statistically significant difference between boys and
girls. The finding reveals that boys differ significantly in all the variables of verbal creativity from girls. The finding also reveals that girls excelled boys in fluency, flexibility and originality aspects of verbal creativity.

**Jabeen, S. and Khan, M. A., (2013)** this study focuses on the creative thinking abilities and self-concept of high and low achievers of the 9th grade students. The sample for the study was high achievers (N = 300) and low achievers (N = 300) selected randomly from two educational zones of district Budgam (J and K, India). For the measurement of creative thinking abilities Mehdi’s (1973) verbal test of creative thinking abilities and for the measurement of self-concept Sharma’s (1972) self-concept inventory was administered for the collection of data. The results of the study highlight that in comparison to low achievers high achievers possess significantly high creativity potential, in comparison to low achievers, high achievers are significantly high in different areas of creativity, viz fluency, flexibility and originality and also in comparison to low achievers high achievers possess significantly high self-concept. The study has also revealed that there is a positive and significant relationship between creativity and academic achievement and self-concept of high and low achiever groups.

**Ghosh, S. M., (2013)** the aim of the present study was to find out the gender differences in creativity among school students. The study was conducted on a sample of 100 school students (50 boys & 50 girls) of IXth and Xth classes of Ranchi. Creativity Test developed by Chouhan and Tiwari (1974) was used to collect the data. To test the hypothesis ‘t’ test was calculated. Result showed that there were a significant differences between boys and girls on creativity (t = 12.16, P < 0.01). On the t-test, the two groups differed significantly on different dimensions of creativity test. Boys were more creative than girls.

**2.3 REVIEW OF LITERATURE RELATED TO ACHIEVEMENT MOTIVATION**

- **STUDIES FROM THE FOREIGN COUNTRIES**
  
  **Crawford, C.B. and Bruce, N., (1976)** a study by this psychologists administered tests of R.B. Cattel’s (1965, 1971) fluid and crystallized intelligence and ergs and sentiments (e.g., Culture Fair Intelligence Test and the School Motivation Analysis Test) and the Torrance Tests of Creative Thinking to 163, 9th graders. Results support the hypothesized distinction between fluid and crystallized
intelligence, but they indicate that the distinction between ergs (defined as traits reflecting basic biological needs for emotional expression) and sentiments (defined as source traits which come into existence because of an individual’s contacts with important cultural institutions) may be more conceptual than empirical. Multivariate analyses of these results and achievement data substantiate the importance of institutionally learned intellectual skills in both achievement and Creativity.

**Eccles, (1983)** discussed the expectancy–value theory of motivation, focusing on an expectancy–value model developed and researched by Eccles, Wigfield, and their colleagues. Definitions of crucial constructs in the model, including ability beliefs, expectancies for success, and the components of subjective task values, are provided. These definitions are compared to those of related constructs, including self-efficacy, intrinsic and extrinsic motivation, and interest. Research is reviewed dealing with two issues: (1) change in children’s and adolescents’ ability beliefs, expectancies for success, and subjective values, and (2) relations of children’s and adolescents’ ability-expectancy beliefs and subjective task values to their performance and choice of activities.

**Ingle Hart and Brown, (1987)** studied gender differences in academic achievement of 885 male and 271 female students between 1976 and 1981 at the University of Michigan medical school. What they found was that not much differences in achievement itself, but differences in what motivated men compared to women to achieve. Apparently, a male clock works just as well as a female clock. What's different is what makes it tick According to Inglehart and Brown, if you want to predict male achievement, you are best advised to consider mastery-related values (like knowledge-based achievement tests) as predictors. On the other hand, if it is female achievement you want to predict, use person-related and social values as predictors. "These gender differences in values lead to different motivations to achieve which in turn influence the development of achievement"

**Haynes, Comer and Hamilton-Lee, (1988)** studied 72 female and 76 male tenth graders to find whether there were significant sex and achievement status differences in the use of learning and cognitive strategies and what was the nature of the interaction between sex and achievement status. They found significant sex effects on eight of their 10 subscales; motivation and attitude were two.
Grabinger and Jonassen, (1988) in their study they did not find gender differences in need for achievement in 79 undergraduate education students who chose independent study courses. They found that their subjects to high in much internal locus of control but GPA gender, major and prior knowledge did not influence their decision to take independent studies. In the present study, because the children were much younger, the investigator hypothesized that no differences in achievement motivation would be attributed to gender differences.

Claudia, M. and Carol, S. T., (1988) praise for ability is commonly considered to have beneficial effects on motivation. Contrary to this popular belief, six studies demonstrated that praise for intelligence had more negative consequences for students' achievement motivation than praise for effort. Fifth graders praised for intelligence were found to care more about performance goals relative to learning goals than children praised for effort. After failure, they also displayed less task persistence, less task enjoyment, more low-ability attributions, and worse task performance than children praised for effort. Finally, children praised for intelligence described it as a fixed trait more than children praised for hard work, who believed it to be subject to improvement. These findings have important implications for how achievement is best encouraged, as well as for more theoretical issues, such as the potential cost of performance goals and the socialization of contingent self-worth.

Middleton, J. A. and Spanias, P. A., (1999) in this review we examine recent research in the area of motivation in mathematics education and discuss findings from research perspectives in this domain. We note consistencies across research perspectives that suggest a set of generalizable conclusions about the contextual factors, cognitive processes, and benefits of interventions that affect students’ and teachers’ motivational attitudes. Criticisms are leveled concerning the lack of theoretical guidance driving the conduct and interpretation of the majority of studies in the field. Few researchers have attempted to extend current theories of motivation in ways that are consistent with the current research on learning and classroom discourse. In particular, researchers interested in studying motivation in the content domain of school mathematics need to examine the relationship that exists between mathematics as a socially constructed field and students’ desire to achieve.
Linnenbrink, A. E. and Pintrich, P. R., (2002) the Ann Arbor Student motivation as an academic enabler for school success is discussed. Contrary to many views, however, the authors conceive of student motivation as a multifaceted construct with different components. Accordingly, the article includes a discussion of four key components of student motivation including academic self-efficacy, attributions, intrinsic motivation, and achievement goals. Research on each of these four components is described, research relating these four components to academic achievement and other academic enablers is reviewed, and suggestions are offered for instruction and assessment.

Zenzen, G. T., (2002) conducted a study on Achievement Motivation of 7th grade Industrial School, Rochester, Minnesota. the results of the study indicates that there was no correlation between Achievement motivation, as measured by Atkinsons Risk taking model of Achievement and student performance as measured by project completion for 7th grade industrial technology students. These achievement motives are shaped by significant interactions in a child’s early developmental years. They are learned motives, shaped by play, experience and rewards or consequences for actions or behaviorous. It is at this time when parents, role models and teachers can have the greatest impact on the child’s habits and values about achievement motivation.

Haywood, H. C., (2004) explored on three principal points (a) new approaches in education are urgently needed, (b) new educational approaches require revised concepts of the nature and development of human abilities, and (c) those new concepts must lead inevitably to emphasis on the acquisition, growth, and application of systematic processes of logical thinking, which is to say, "cognitive" or "metacognitive" education. The author presents a "transactional perspective" on human abilities, with three principal components: intelligence, cognitive processes, and intrinsic motivation. Two programs of cognitive education, one for preschool children, the other for older children, adolescents, and adults, are described and data are presented showing that systematic classroom application of such programs by well trained teachers can lead to enhancement of cognitive development, intrinsic motivation, and even IQ. Further, relatively long-term evaluative studies demonstrate that there are positive and long-lasting effects of cognitive education on subsequent learning and school achievement.
Martin, D. J., (2004) the present study sought to explore invariance in factor structure, cluster profiles, and perceptual mapping in student motivation as a function of gender. Among a sample of 2,927 Australian high school students, motivation differences were explored using the Student Motivation Scale (Martin, 2001, 2002a, 2002b). The data clearly show that there are differences in the degree to which boys and girls are motivated. Girls are statistically significantly higher in learning focus, planning, study management, and persistence while boys are significantly higher in self-sabotage or self-handicapping. Interestingly, girls are also significantly higher in anxiety. However, across boys and girls there is invariance in factor structure, cluster profiles, and perceptual mapping suggesting that there are no fundamental motivational differences of kind. That is, in relation to key facets of motivation, there is a highly similar factor structure across boys and girls, boys and girls can be grouped into parallel motivation clusters, and boys and girls seem to perceptually locate key motivational dimensions in similar ways. It is concluded that although girls have higher levels of motivation than boys on a number of dimensions, the two groups' fundamental motivation orientations do not appear to be markedly qualitatively different.

Kennedy, A. N. and Trong, K. A., (2006) This research used PIRLS 2006 data to explore home factors that influence students’ motivation to read, as well as the relationship between student motivation and reading achievement. The research employed structural equation modeling to empirically test a theoretical model of student motivation to read and home factors that may influence motivation, including parental attitudes and behaviors, early literacy activities, and the presence of children’s books. Lastly, differences in the relationships among these variables were examined for boys compared to girls. This research will contribute to the body of literature on the influence that the home literacy environment can have on reading motivation and reading comprehension, and may help inform analysis and reporting strategies for future cycles of PIRLS.

Meece, J. L., Glienke, B. B. and Burg, S., (2006) in this study, gender differences in motivation are examined using four contemporary theories of achievement motivation, including attribution, expectancy-value, self-efficacy, and achievement goal perspectives. Across all theories, findings indicate girls' and boys'
motivation-related beliefs and behaviors continue to follow gender role stereotypes. Boys report stronger ability and interest beliefs in mathematics and science, whereas girls have more confidence and interest in language arts and writing. Gender effects are moderated by ability, ethnicity, socioeconomic status, and classroom context. Additionally, developmental research indicates that gender differences in motivation are evident early in school, and increase for reading and language arts over the course of school. The role of the home and school environment in the development of these gender patterns is examined. Important implications for school professionals are highlighted.

Li, P. and Pan, G., (2009) the survey conducted in Qingdao Agricultural University reveals the relationship between motivation and achievement as follows: instrumental motivation influences both high achievers and low achiever; while high achievers have greater integrative motivation than lower ones; Interest plays an extremely important role in study and high achievers have a strong sense of achievement.

Liu, G. and Zhu, X., (2009) this paper, applying Achievement Motivation Scale, conducts investigation to 278 grade 2 senior high school students on their achievement motivation. The research results show that there is no significant difference between the achievement motivations of students from common senior high school and those from key senior high school; the achievement motivations of senior high school students do have significant difference in genders and male students have higher achievement motivations than female students; the achievement motivations of students studying science and students studying arts have difference closely to significant difference; motivation to pursue success has negative correlation with motivation to avoid failure. Schools, gender and science type do not have cross functions on achievement motivations.

Oladipo, S. E. and Ajufo, B. I., (2010) this study investigated possible factors that predict need achievement among university undergraduates in Nigeria. Using convenient sampling method, a total of 420 participants were selected for the study. There were 153 male and 267 females. 334 were Christians, 81 Muslims, and 5 traditionalists. Of these, 69 were in their first year at school, 166, in their second year,
147, in their third year and 38 in their fourth year. Their ages ranged between 16-31 years, mean age was 24.67 and a standard deviation of 23.14. Three hypotheses were tested and the results indicated that sex was not a significant predictor of students’ need achievement (df = 418, t = -0.248, p > 0.05); however, institution of learning (df = 2, F = 203.48, p < 0.05) and students’ academic level (df = 3, F = 32.76, p < 0.05) were significant predictors of students’ need achievement respectively. The findings indicate that students’ gender has no influence on their need achievement motivation, however, students’ institution and academic level have significant influence on their need achievement motivation.

Audrey, C. R. and Sarah V. Z., (2012) conducted a research that has shown that involving students in environmental projects improves their motivation, skills, and achievement on standardized tests. This document contains images of the body parts of small mammals with directions for reproducing, cutting, gluing, and assembling them (with paper fasteners) into life-size jointed models of the animals. A set of card fronts and backs gives facts about each of the animals (to be matched to the corresponding jointed models) with an image of the correct animal on the reverse side for self-checking. The main lesson activity is explained and presented as a learning cycle. A menu of authentic activities that would make meaningful follow-on activities in the last phase of the learning cycle, the expansion phase, is presented. These are sorted into different multiple intelligence areas to provide student choice and differentiation of instruction. Each activity is accompanied with objective, instructions, rationale of how the activity is an authentic task, criteria for evaluation and an example correct response to the activity.

Dorraine, F., Kayyal, S. M. and Natalie, S., (2010) this report described how implementation of differentiated assignments provided documentation of how students' motivation increased. The volunteers that participated in this study were 6th, 7th, and 8th graders. Students struggle academically to meet the expectations of their instructors. These strategies were documented using surveys and exit slips. Participants received a multiple intelligence survey to see how their individual learning styles impacted their academic success. These collection tools were documented to show how students progressed academically. The intervention's post
data resulted in academic growth. Using differentiated strategies allowed students to become motivated according to their ability. There were extraneous factors that affected the students' level of motivation; however, the majority of students showed an increase in motivation. This increase was a result of using differentiated methods of instruction in a classroom setting. The implication of these tools allowed students to become successful in their academics.

Clark, G. L., (2010) the following study examined differences in domains of achievement motivation based on gender and developmental group. Participants included 129 males and females. The developmental groups in this study consisted of preadolescents (9-12 years) and adolescents (18-19 years). Participants were administered a demographics form and the Achievement Motivation Profile (AMP: Friedland, Mandel, & Marcus, 1996). A 2 x 2 MANOVA was used to analyze differences in achievement motivation domains (Achiever, Motivation, Competitiveness, and Goal Orientation) based on gender and developmental group. Results revealed a statistically significant difference between males and females on Achiever, Goal Orientation and Motivation. There were no interaction effects (between gender and developmental group) or main effects for developmental group observed. Implications and directions for future research will be discussed in the paper.

Gowen Deborah C., (2010) the purpose of this study was to further knowledge about the Webquest model and the use of Webquests with students of different ability levels and multiple intelligence preferences. The key findings of this study showed that only the gifted and average ability groups had significant gains from the Webquest instruction. No correlation was found between multiple intelligences preference and achievement or motivation. In addition, no ability group was significantly more motivated by the Webquest instruction than another. Results showed that the Webquest was useful form of instruction for gifted and average students, but was not as useful for at-risk learners, who have learning needs that were not met by the Webquest instruction. From this research, positive social change could result if teachers make changes in Webquests to better support the needs of at-risk learners.
Freund, P. A. and Holling, H., (2010) examined the role of the BIG 5 and general mental ability (GMA) for the prediction of current achievement motivation (CAM) in an ability testing context. A total of 189 participants took two figural matrices tests, and 90 of them received a training intervention between tests. Separate analyses for both tests showed openness, conscientiousness, and neuroticism to significantly predict CAM. Also, more intelligent persons were more interested and more confident. Training had an additional impact on probability of success. CAM in turn significantly predicted matrices test performance and test times beyond GMA. The results show that the BIG 5 can be used to understand what kind of persons are really motivated in experimental testing situations, and how strongly test performance is tied not only to GMA, but also to CAM.

Cheng, Hsiu-Hua, Yang, Heng-Li, (2011) this study explores the impact of three types of team knowledge: domain knowledge, methodological knowledge and implementation knowledge, as well as achievement motivation on student teams' collective creative efficacy (CCE) during information system development. This research also discusses the correlation between CCE and project performance using data from 98 student teams. The results show that achievement motivation positively influences CCE, either in "actual demand" teams or in "suppositional demand" teams. Domain knowledge is significantly correlated to CCE in "actual demand" teams, but methodological knowledge and implementation knowledge significantly influenced CCE in "suppositional demand" teams. CCE is not significantly related to project performance in "actual demand" teams. However, CCE is related to process performance and product performance in "suppositional demand" teams.

Ghasemi, F. et al., (2011) conducted a study to investigate the relationship between Creativity and Achievement Motivation with high school students’ entrepreneurship in Shiraz used in 381 (180 male and 201 female) students the results indicated that there was a meaningful relation between student’s Creativity and entrepreneurship. There was also meaningful positive relation between Achievement Motivation and entrepreneurship. Among the components of Creativity, fluency and originality had positive relation to entrepreneurship. Among components of Achievement Motivation, diligence, purposefulness and persistence had positive meaningful relation to entrepreneurship; however, optimum use of time had negative
relation to entrepreneurship. Other components of Achievement Motivation had weak relations were entrepreneurship. Moreover, the results showed that girls were higher than boys in Creativity, Achievement Motivation and entrepreneurship.

**Rashidi, N. and Javanmardi, F., (2012)** in the present study, the researcher has tried to investigate the type of goal orientations held by Iranian EFL students and to examine if achievement goals are dependent on gender. To achieve the goal, achievement goal orientation questionnaires were distributed among 182 B.A. students, both males and females, majoring in English Literature at Shiraz University. Consequently, having analyzed the data, the researcher found that that mastery was the dominant type of goal orientation held by Iranian EFL students. Afterwards, performance approach, work avoidant, and performance avoidant goal orientations were respectively the achievement goal orientations held by them. An independent sample t-test was run for the purpose of comparing the students both males and females with the type of achievement goal orientations held by them to see whether the achievement goal orientations are dependent on gender or not. The results indicated that there were no significant differences across gender groups and the goal orientations held by the students were not dependent on gender.

**STUDIES FROM INDIA**

**Uma, J. I. and Kamalanabhan, T. J., (2006)** focused on the development and application of an adult achievement motivation (AM) scale. A questionnaire was constructed and a pilot study was conducted to find the underlying dimensions of the AM construct. Principal component analysis of 206 samples indicated that 10 factors appeared relevant, which explained for 69% of the original variance. Cronbach Alpha values for the factors ranged from 0.55 to 0.87. The ten salient dimensions identified were: Task orientation, Perseverance, Anticipatory behaviour, Competitiveness, Test taking behaviour, Reaction to success/failure, Future orientation, Independence, Rigidity and Involvement. The questionnaire was administered to 222 scientists working in R&D organizations. Discriminant analysis was carried out using the Statistical Package for Social Sciences (SPSS) package. Results indicated that there exists a significant correlation between consistently good performance and Achievement Motivation.
Adsul, R. K. and Kamble, V., (2008) the present study was carried out to investigate the effects of gender, economic background and caste differences on achievement motivation possessed by college students on the basis of societal transformation. The study was based on one hundred and ninety two under graduate students of various colleges from Sangli city of Maharashtra, was selected by random sampling procedure. As per research plan 48 subjects from each caste group i.e. forward castes, other backward castes, Scheduled castes and Nomadic tribes were selected on the basis of male - female ratio of 1:1, and three levels of economic background of family. Achievement Motivation Test (ACMT) developed by Bhargava was used to collect the data from the sample. ‘t’ test, Duncan’s Multiple Range test and three way ANOVA were calculated for deriving the results. The results show that there is a significant difference between scheduled caste and Nomadic tribes, scheduled caste and other backward caste students and between male and female students. Forward caste and scheduled caste group students are having a high achievement motivation while other backward and nomadic tribes group students are having an average level achievement motivation. As well as male students are having a high achievement motivation while female students are having a below average level of achievement motivation. The most important finding is that the computed F ratio of interaction was found to be non significant which indicates that caste, gender and economic background of family does not jointly affect on achievement motivation of college students.

Singh, S., (2012) In the present study the investigators attempt to find out the significant relationship of achievement motivation of senior secondary students in relation to their Self-concept and Socio- emotional climate of the school. The sample consists of 300 students from 10 governments senior secondary schools of Solan District of H.P. were selected randomly. The investigator has used Self- concept Inventory by Mohsin. Scale, Socio- emotional School Climate Inventory by Renuka Kumari Sinha and Rajni Bhargava and Achievement values and Anxiety inventory by Prayag Mehta to collect the necessary data from the students. The data were analyzed by using analysis of variance. The conclusion of the study reveals that achievement motivation of senior secondary school students does not differ significantly at different levels of their self-concept and socio-emotional climate of the school.
Devi, R., Gupta, S. and Shekhar, C., (2011) the present study was carried out with the objectives to investigate the gender related differences and differences across academic streams on achievement motivation among college students. The purposive sampling method was used to select 80 undergraduate (40 males and 40 females) students of various colleges from Jammu region with age range of 18-23 years.. As per research design of the study all 80 subjects were selected on the basis of gender (males and females) and academic streams stream (arts and sciences) using Achievement Motivation Scale. Data were analysed using 't'- test. Significant difference was found between the achievement motivation of sciences and arts stream students as well as among male and female college students. The present findings reflect the role of gender and academic streams in achievement motivation of college students.

Shekhar, C. and Devi, R., (2012) investigate in the gender related differences and differences across academic majors on achievement motivation among college students. The study was carried to on 80 undergraduate students of various colleges from Jammu region, 40 males and 40 females (ages 18-23 years) selected by purposive sampling method. As per research plan all 80 subjects were selected on the basis of gender (males and females) and academic majors (arts and sciences) using Achievement Motivation Scale. t- Test was used for deriving the results. Significant difference was found between the achievement motivation of sciences and arts stream students and achievement motivation among male and female college students. The differences indicate significant role of gender and academic majors in achievement motivation of college students.

Thammishetty, M. and Prashanth, T., (2012) The major purpose of this study is to find out the level of Achievement motivation of rural and urban secondary school students in Ernakulam district in Kerala state. The data was collected by means of Deo- Mohan Achievement Motivation (N- Ach) Scale on 200 samples of students in various schools in Thripunithura Sub-district selected through purposive sampling technique. The collected data were subjected to t-test for large independent groups. The findings indicate that there is a significant difference in the level of achievement motivation between following sub sample groups: rural and urban students, rural boys and urban boys, rural girls and urban girls, rural girls and urban boys; there is no significant difference in the level of achievement motivation between rural boys and urban girls. The findings of the study should be an eye opener to the curriculum frame workers and teaching community.
Panigrahi, M.R., (2013) The study aims to investigate the relationship of School Effectiveness with regard to Community Participation at primary level of education. The descriptive survey method was used to carry out this study. A Total number of 27 more-effective and 35 less-effective primary schools were included in the sample of the present study. And also all principals of selected schools and 5 community members from each locality of these schools were selected incidental purposively, to investigate their participation in school activities. In order to collect data from the selected samples the School Effectiveness Schedule and Community Participation Interview Schedule were developed by the researcher. On the basis of the findings of the present study it is revealed that the schools having better Physical facilities, HM and teachers’ performance and Students’ performance were identified as more-effective schools. It is essential to identify schools which are less-effective and provide necessary help to develop their physical facilities and other aspects so as to develop the performance of students in order to increase school effectiveness. One of the significant findings of the present study is the higher community participation is associated with greater school effectiveness.
Insights from the review of related literature pertaining to Multiple Intelligences, Creativity and Achievement Motivation

A. Multiple Intelligences

The insights from the review of related literature pertaining to Multiple Intelligences reveal that the studies are still in the nascent stage. The research findings show a positive improvement in the children’s performance by the implementation of Multiple Intelligences theory. Most of the studies conducted reveal that they are based on the teaching – learning strategies i.e., implantation of Multiple Intelligences in the school practices. The studies indicate improvement in the students in diverse ways by the implementation of Multiple Intelligences in the teaching learning strategies. The Multiple Intelligences based instruction indicate increased multimodal skills, improved attitudes and behavior. Multiple Intelligences teaching, encourages schools to devise rich educational experiences for children. Multiple Intelligences instruction improved students standardized achievement scores specially it heed helped students with learning disabilities. Implementing Multiple Intelligences improved academic achievement motivation and good behavior. Enhances students reading comprehension skills.

The review of related literature of Multiple Intelligences shows a lacunae in the studies on the level of Multiple Intelligences. So the present study focused on the finding the level of Multiple Intelligences of the students is much important to our Indian context. Less studies have been conducted in higher education. Research studies recommend that the Multiple Intelligences integrated education could be a tool which meets the raising demands of the present society. The studies also proclaim that the Multiple Intelligence based instruction score over the traditional methods of teaching in terms of efficiency. Studies related to the Indian context were comparatively lesser.

The teachers realized that they were highly benefitted from it transformed teacher beliefs. Use of Multiple Intelligences in mastering multiplication fostered in students “own thinking strategies for harder facts and built mastery through practice and problem solving. Students Multiple Intelligences profile which help the teachers to identify their weakness and help the students in difficulty. Multiple Intelligences approach made learning fun. Incorporation of Multiple Intelligences should consider the cognition, language, and culture of student. Multiple Intelligences instruction was more effective than traditional text books.
B. Creativity

There are many studies on creativity in Indian and Abroad. Many studies from India have recorded gender difference among secondary school students. In some studies the boys have scored significantly than the girls. Where as in some studies the girls have scored significantly than the boys. Studies have shown a significant difference in the different components of Creativity viz., Fluency, Flexibility and Originality among the secondary school students. Various studies with respect to locale of the school have shown significant difference with regard to creative thinking. In some studies the urban students have scored over the rural students, rarely the rural students have scored over the urban. Studies on Creativity with respect to background variables like ses, caste, tribe, locale of the school and types of schools have been conducted in India are evident. Insights from the review of literature related to creativity have shown that engaging in arts and teaching through Multiple Intelligences have improved Creativity. Many correlational studies have been conducted between Creativity and Intelligence, Academic Achievement, Self Concept, Motivation etc., So in view of this review the researcher was inspired to conduct a study on Multiple Intelligences and Creativity, as there was a gap in this area.

C. Achievement Motivation

Insights from the review of literature related to Achievement Motivation shows there are numerous studies on Achievement Motivation with respect to background variables like ses, gender, type of school, locale of the school etc., Studies on Achievement Motivation have shown significant differences with respect to gender in the earlier times the boys were found to have higher Achievement Motivation than the girls. But in the recent times the Achievement Motivation of the girls is higher than the boys. Although studies on Achievement Motivation and Intelligence are found, studies on Multiple Intelligence and Achieve Motivation have not been conducted in India. A review on Achievement Motivation of the adults in their organizations have shown a significant correlation between good performance and Achievement Motivation. Studies on Achievement Motivation with respect to caste, ses, tribe etc., was not found to effect Achievement Motivation to a larger extent.
CONCLUSION

The review of related literature pertaining to Multiple Intelligences, Creativity and Achievement Motivation gives a broad perspective of the empirical studies conducted in this area.

In the areas of Multiple Intelligence, Creativity and Achievement Motivation it also provides supporting evidence for the present study by displaying the results of those work quoted. The lacunae on the area of finding the level of Multiple Intelligence, Creativity and Achievement Motivation led the researcher to conduct a study on the present topic.

Although there are studies on the relationship between intelligence, creativity and achievement motivation the relationship between Multiple Intelligence, Creativity and Achievement Motivation is lacking. The need to investigate the nuances between the Multiple Intelligence, Creativity and Achievement Motivation is worthwhile endeavor in the present scenario, where in Multiple Intelligences by itself is emerging as a separate specialized area in Education. All these factors motivated the investigator to pursue a more systematic and adequate study in the field of Multiple Intelligence along with the variables Creativity and Achievement Motivation.