A review of literature is the purposeful selection, synthesis and documentation of the relevant literature pertaining to the research problem. It is an important milestone, which gives direction to an endeavor. The available researches date back to 1990’s and attempt has been made to inculcate studies until 2010 related to Multiple Intelligence Theory (MIT). This chapter presents the studies and findings reported by various researchers in the journals published and unpublished. Specialized Web-based search engines like EBSCO, JSTOR, Krishi prabha and Eric were also explored to find out published researches and articles. The present study aimed to find out the effect of intervention programme given to the preschool teachers on multiple intelligences of preschool children. Chapter presented here is dissevered into the following sections:

1. Identification of Multiple Intelligences
   1.1 Children
   1.2 Teachers

2. Intervention programme
   2.1 Activities involving Multiple Intelligences
   2.2 Development of intervention programme

3. Assessment based on Multiple Intelligences

4. Gender differences on Multiple Intelligences assessment of children

5. Multiple Intelligences and preschool children
1. Identification of Multiple Intelligences

Gardner (2005) stated that schools have often sought to help students develop a sense of accomplishment and self-confidence. Theory of Multiple Intelligences provided a theoretical foundation for recognizing the different abilities and talents of students. This theory acknowledged that while all students may not be verbally or mathematically gifted, children might have an expertise in other areas, such as music, spatial relations, or interpersonal knowledge. Approaching and assessing learning in this manner allowed a wider range of students to successfully participate in classroom learning.

Many researchers objected the way Multiple Intelligences (MI) theory used in classroom. Moran, Kornhaber, and Gardner (2006) exemplified the proper way to integrate MI theory in curricula. They stated that the response of educational institutions to MI theory is often to group students according to intelligence scores or require teachers to prepare eight or nine entry points in their lesson plans. This response is mistaken in that it treats MI theory as an education policy, rather than an explanation of how the mind works. The right way to apply MI theory in classroom is to develop rich lesson plans and teaching methods that allow students to nurture themselves in their own way.

1.1 Children

Gardner and Hatch (1989) demonstrated that children perform differently on activities that require the use of different intelligences, suggesting that they have strengths and weaknesses in different areas and distinct intellectual profiles. They showed that among a sample of preschool children, there is reasonable evidence for the disaggregation of intellectual factors.

Highland, Mcnally and Peart (1999) examined the use of Gardner's multiple intelligences to improve student behavior. Twenty students in prekindergarten, kindergarten, and first grade classrooms in two suburban Chicago schools were studied. Misbehavior such as talking out, not keeping their hands to themselves, being off-task, not cooperating, and not participating was documented by means of classroom observations and anecdotal
records. The intervention was comprised of 16 classroom lessons using each of the 8 intelligences; lessons were implemented in October and November of the school year. Visual aids were used to ensure that students understood the intelligences, and graphic organizers were used to engage students in the learning process. Each student's strongest intelligence was identified, and it was determined if the student was behaving properly during a lesson geared toward that particular intelligence. The results suggested that 77 percent of students showed an improvement in their behavior when working on activities geared toward their strongest intelligence.

Joyce (2003) tested the viability of using Gardner's theory of multiple intelligences as a structure for identifying knowledge diversity in business students and whether such knowledge increases identification of self and others as potential sources of knowledge. The results from business students with substantial work histories indicated that the Multiple Intelligence Preference Inventory gives a valid and reliable indication of their preferred intelligences and that knowledge of these results is associated with assessments of self as sources of knowledge for others and, conversely, identification of others as potential sources of knowledge. The results were further supportive for investigations into the use of the inventory and knowledge of multiple intelligence theory not only as part of a knowledge identification and sharing program for students but also as a tool for recognizing, respecting, and benefiting from such diversity in the workplace.

Chan (2004) assessed the profiles of eight intelligences of 133 gifted students from five perspectives based on their self-ratings and ratings by their mothers, fathers, teachers, and peers. Across different perspectives, logical-mathematical intelligence received the highest ratings whereas bodily-kinesthetic and naturalist intelligences received the lowest ratings. Based on the three profile similarity indices, elevation, scatter, and shape computed to describe each of the typical profiles of students, mothers, fathers, teachers, and peers, it was suggested that the mother perspective and the father perspective were more similar than those of teachers and peers. In addition, the indices also suggested the interpretation that mothers tended to be more sensitive to students' multiple intelligences
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than fathers, teachers, and peers. Students' perceived creativity and leadership were more predictable using the multiple intelligences from the student perspective.

Davis (2004) designed a study to increase the academic achievement of 4th-grade students in science. The problem to be solved was that 4th-grade students in a rural elementary school exhibited low academic achievement in science. The researcher utilized the multiple intelligences (MI) theory and brain-based learning to develop the IMPACT strategy. This acronym was based on the essential components in the treatment program: introduce the focus lesson, make it relevant, practice the new concept in MI learning centers, allow time to set goals and reflect on learning, choose an independent learning project, and take time to celebrate. The independent variable consisted of the MI learning centers, and student achievement was the dependent variable. In the one-group/pretest-posttest research design model, the participants were given a pretest, exposed to an intervention program (i.e., the IMPACT strategy), and given a posttest to determine the effectiveness of the intervention. As a result of the intervention, 3 of the 6 expected outcomes were achieved: Twenty students completed and turned in science class work assignments daily, displayed appropriate behavior for learning during science, and displayed a positive attitude about learning in science. Analysis of the results indicated that there was a significant improvement in students' achievement, behavior, and self-esteem.

Hickey (2004) reported increased student achievement in music, literature, history, and geography. MI-based units were developed and implemented in various classrooms by teachers enrolled in multiple intelligences graduate course. The five case studies revealed an increase in student engagement and participation. In a music unit, students were more actively engaged, remembered information for longer periods, and utilized higher level thinking skills to make connection between different musical eras and artists. The five case studies provided clear examples of student success attributed to MI based instruction.
Jung and Myung-Hee (2005) determined whether Korean young children exhibited distinct profiles of intellectual strengths and weaknesses based on Project Spectrum and the working style differences of children among strength, no strength/weakness and weakness domains. Spectrum is perhaps best viewed as a theory based approach, which includes Gardner’s Multiple Intelligences theory, for assessment and educational practice in the early childhood years, with the explicit goal of identifying and nurturing the distinctive cognitive strengths and interests of young children.

Project Spectrum was applied to 16 preschool children of which ten male children and six female children. Project Spectrum workshops were performed four times over the period of four months to assess Project Spectrum activities and the working style of children. To obtain data regarding the children’s working styles in the theme-centered activities including the Project Spectrum activity, the researchers observed the class 25 times. Project Spectrum consisted of 15 activities within the seven intelligence domains of movement, language, mathematics, science, visual arts, music and social. Present study only included seven Project Spectrum activities: Creative Movement Measure (movement domain), Story-board Activity (language domain), Dinosaur Game (mathematics domain), Treasure Hunt Game (science domain), Art Portfolio (visual arts domain), Happy Birthday (music domain), Classroom Model (Social domain).

Each activity was videotaped or audiotaped, and two independent observers scored children. Spearman rank order correlations between the Project Spectrum activity scores of the two observers ranged from 0.86 (language) to 0.97 (mathematics) and demonstrated the inter-rater reliability of these scores. Spearman rank order correlations between the scores of the two observers about the working style of children ranged from 0.91 (language, science) to 0.97 (art). To compare children’s performances across each of the activities, standard deviations (SD) were calculated for each activity. Children who scored one or more SD above the mean were judged to have a strength on that activity; those who scored one or more SD below the mean were considered to have a weakness in that activity. Project Spectrum helped to find in which domains each child had strength and/or weakness. Most children had some strength or weakness and showed relative strong and weak domains on a personal level as it was also found that a child’s strength in one area might facilitate performance in another. The study also showed that
performances of children in domains of strength compared with domains of no strength/weakness and weakness were characterized by 'easy to engage', 'confident', 'focused', 'persistent' and 'reflective on own work'. Identifying and developing children's strengths is one of the most effective and desirable ways to get children to have positive working styles.

Above researches indicates that multiple intelligences could be identified at an early age among children. Identification of strength and weakness enables teachers to adopt strategies, which further helps to work with the existing intellectual skills of children.

1.2 Teachers

Goodnough (2001) in a case study reported on the teacher development that resulted when an elementary teacher explored multiple intelligences theory (MI theory) and used it as a guide to make decisions about her curriculum planning and classroom practice. Several questions guided this research: (a) How did Celia (teacher) interpret MI theory? (b) How did she translate MI theory into classroom practice? and (c) How did she enhance her professional knowledge in the context of science teaching and learning as a result of adopting an MI theory approach? Celia had previously taught grade levels from junior kindergarten to grade four. She had teaching experience in multi-grade settings and for several years had taught music at a music school. She had B.Mus. and B.Ed. degrees and at the time of the study was a part-time M.Ed. student. Celia deliberately targeted teaching approaches and learning activities to cater to each of the multiple intelligences. She included seven detailed lessons in her Energy unit that target each of the multiple intelligences, especially the bodily-kinesthetic, interpersonal, intrapersonal, verbal-linguistic, and logical-mathematical intelligences. Celia adopted a range of instructional strategies and activities, many of which she had not used before, such as direct instruction, mind mapping, visualization, inventing, learning centres, art posters, games, debates, and critical thinking. Several data collection methods and sources were used - semi-structured interviews, participant observation, group action-research meetings, and journal writing. Through critical self-reflection, she became more adept at integrating many aspects of her professional knowledge — subject-matter knowledge, pedagogical-
content knowledge, knowledge of her own strengths and weaknesses as a teacher, and knowledge of how students learn — thus enhancing her ability to teach science.

Chan (2003) undertook a study to assess multiple intelligences in a sample of 96 Chinese secondary school teachers in Hong Kong, and explored the consistency between these teachers’ multiple intelligences and their areas of responsibilities. A total of 186 questionnaires were distributed to those who indicated interest in participation. Only 96 teachers returned questionnaires with completed data for analysis, yielding a response rate of about 52%. These 96 teachers (49 men, 46 women, and one who did not report gender) were between the ages of 22 and 47 (M=29.21, SD=5.36, based on n=90 because 6 did not report age), and had been in the teaching profession for 1 to 26 years (M=4.79, SD=3.63, based on n=92 because 4 did not report years of teaching experience). All teachers completed a questionnaire that consisted of the 24-item revised student multiple intelligence profile (SMIP-R; Chan 2001a), the Wegner-Schwarzer-Jerusalem 10-item generalized self-efficacy scale (GSE; Schwarzer, 1993), and the Schwarzer-Wegner 10-item self efficacy toward helping scale (SETH; Schwarzer, 1993). In general, teachers rated their strengths in person-related intelligences. In contrast, they gave relatively lower ratings on visual-spatial and bodily-kinesthetic intelligences—lower than the conventional verbal-linguistic and logical-mathematical intelligences. While there were no gender or age group differences, arts/music/sports teachers indicated greater strengths in both intrapersonal intelligence and interpersonal intelligence was the significant predictor of their self-efficacy in helping others.

Shore (2004) explored the changes that transpired in two teacher preparation courses that supported the use of MI theory in their instruction. This instrumental collective case study was designed to collect qualitative data from teachers and from students on the use of MI theory through an interview based on a Teacher Educator Multiple Intelligences (TEMI) questionnaire, lesson plans, and course syllabi also, background information collected from participants. Two teachers were selected by the researcher as teachers with the experience, resources, and flexibility to participate in the case study investigation. Students from these two different teacher education courses voluntarily participated in
the study. Teacher educator had 7 years and 5 years of experience in teaching respectively. One class contained 17 and the other 18 pre- and in-service teachers for 35 teachers. Three observation of each class were conducted at the beginning, middle, and end of the semester using TEMI observation protocol. At the end of the courses, student interviews were conducted with a random selection of 25 of the students in the courses and a guide to interviewing was followed to elicit information about teacher efficacy in the domains of instructional strategies and student engagement. Many future teachers have contacted the researcher by phone, e-mail, and office visits to further describe the use of MI and its relationship with their preparation. For validity and credibility, the researchers, teacher educators, two students, one from each class chosen by the teacher educators and two MI experts, reviewed results. Further to check the trustworthiness of this qualitative data, author used checklist prepared by stake (1995). Students appeared to be highly engaged in the MI supported activities and instruction. Engagement through MI was also varied in student interaction with assessment and evaluation. After expression by students, it was found that there was no one right answers that demonstrated a high level of engagement. Though concern of limited time was expressed by students while performance. In both the cases, student reflected their learning in many ways using variety of media. For course evaluation, rubric was created for mid term assessment and then students evaluated each other’s work, a supporting element of MI. Teacher’s efficacy was measured quantitatively, which examined teachers’ ability to positively affect students and generate successful performance outcomes regardless of their students’ backgrounds and experiences. In case one, the responses on their teacher efficacy questionnaires showed a range from 7.5 to 9 and in case two it was 6 to 9 on a 9-point scale.

Duhan, K. (2005) aimed to measure emotional intelligence skills (EI skills) of schoolteachers and to develop an intervention program to scaffold various aspects of emotional intelligence. The study was conducted on 60 teachers and 120 children from 3 different profile schools of Hisar city. Multistage sampling procedure was adopted. A test was developed and standardized to measure emotional intelligence skills of schoolteachers. The results portray that near about 60 per cent of respondent had medium
or low level of emotional intelligence skills. No significant difference was found between emotional intelligence skills of pre and primary school teachers, however, significant difference was observed between the EI skills of respondent from different profile schools. The micro-system factors of the respondents such as age, birth order, family income, marital status, exposure to mass media revealed a significant association with emotional intelligence skills of teachers. Meso-system variables of the respondents, such as father’s education, popularity in social group also reported significant association with emotional intelligence skills of teachers. The exo-system settings of the teachers also influenced their emotional intelligence level, which included the developmental facilities in the surrounding community. Lastly, cultural influences comprising the macro-system of the respondents transmitted the effect through parental discipline technique. Study revealed a significant difference in pre and post testing assessment of respondents in all the four aspects of emotional intelligence. Impact of interaction package on experimental group was also verified through the performance of the students of selected teachers.

Sonawat and Gogri (2008) undertook a study to find out preschool teacher’s knowledge, attitude and practices regarding theory of Multiple Intelligences before and after intervention program in the form of workshop. It also aimed to study the knowledge and attitude about the theory based on work experience. A pretest, posttest research design was applied on 80 teachers from two schools. Pretest questionnaire was administered to all the teachers, followed by a series of three workshops for 40% of total sample. This 40% of sample was also observed to record practice before the administration of the pretest. Each workshop was alternated with observation sessions by time sampling method. At the end of the third workshop, the posttest questionnaire was administered. The posttest results recorded a positive change in the knowledge and attitude of the teachers regarding the theory and the eight intelligences. It also reported a change in the teachers’ practice as compared to the teachers’ knowledge and attitude thus indicating gap between knowledge and practice. The study also indicated a positive relation between the number of years of experience and the teachers’ attitude towards the implementation of the eight intelligences in the preschool classroom.
Sonawat and Krishnan (2009) conducted a study to find out the perceptions and practices of primary school teachers regarding concept of multiple intelligences as well as develop and implement a module in the form of workshops. The total sample consisted of 17 teachers from standards third and fourth from an English medium school in Mumbai city. Questionnaire, rating scale and observation schedule was used for data collection. Practice was recorded through observation after which the pretest was administered to all subjects, followed by two workshop, alternated with observation sessions. After observation the posttest was administered. A pretest posttest design indicated an increase in the mean scores of the teachers’ perceptions regarding each of the eight intelligences from pre to post. Classroom practices also revealed an increase in the use of Visual-spatial intelligence after the intervention. The results revealed the effectiveness of the intervention programme.

In brief, researches indicated that the identification of multiple intelligences preferences among teachers helps to improve their self-awareness and helps them to redesign the strategies to be used in the classroom. Intervention based on MI helps to improve their perception and practices in the classroom.

2. Intervention Program
2.1 Activities involving Multiple Intelligences
Merrefield (1997) stated the applicability of the multiple intelligence theory to preschool children through the presentation of the fairy tale ‘The Three Billy Goats Gruff’. Interactive skills developed by the students in their presentations when different content areas integrated on a single topic. Results indicated improvement in children's ability to transfer content learning. Lindquist (1998) used kamishibai story cards to check elementary students' comprehension. By giving them practice in oral communication about another culture, students developed their visual/spatial intelligence.

Wagmeister & Shifrin (2000) reported an elementary unit on rain forest where MI based instruction was delivered through a variety of learning experiences. Students at Westmark School in Encino California learned about rainforest by transforming their classroom into
rainforest. Students used wall decorations, music, sound effects, flora, and humidifiers to create a realistic setting where they could learn about the rainforest experientially. Students were involved in other MI-based activities like searching through magazines for photos, navigating internet sites for information about rain forests, learning about rain forest bugs, insects, and arachnids from a visiting entomologist, learning about rain forest animals by meeting and touching a giant iguana and a Capuchin monkey, and participating in units taught by high school student. The MI based curriculum helped the students truly experience a rainforest by incorporating an array of intelligences, educational mediums, and engaging activities. The MI-based rainforest unit was infused with real-world connections that literally made the information 'come-alive'.

Dias-ward & Dias (2004) planned and implemented a Kindergarten MI-based unit on ladybugs. Aside from allowing the students to explore, investigate, touch, hold, and observe the ladybugs, the cross-curricular learning experience addressed a variety of unique learning preferences. Linguistic activities included daily observations and discovery journals, books on ladybugs, listening centers, classroom discussions, publication of class books, etc. Activities for logical mathematical intelligence included counting and estimating the number of ladybugs, sharing counting strategies, comparison and measurement. The children drew visualized, designed, colourful illustrations, and used flowcharts and flipcharts to present their learning using visual spatial intelligence. Hands-on investigations, role-playing, ladybug construction, puzzles, manipulatives and dance were activities carried out under bodily kinesthetic intelligence. Children created short chants, songs and raps for musical intelligence. Under interpersonal intelligence, children were involved in peer sharing, think-pair-share strategies, and generating testable questions. Activities for intrapersonal intelligence included quite reflection time, writing in the journal, providing a range of choices and interest centers. Finally for naturalist intelligence children explored, sought, and identified patterns, classified varieties and life cycles phases and the bugs in classroom and nature.

Díaz-Lefebvre (2005) created a pilot study in the Glendale Community College (GCC) psychology department to explore the application of Howard Gardner's multiple
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intelligences (MI) theory to form the basis of a new paradigm-one where creative forms of learning would result in real understanding. More than 3,400 students have completed the program at the college. Based on students' intelligences, they chose creative "learning options," such as acting/role-playing, mime, book reports, creative dance, collage, sculpture, original poetry, interviews, musical/rhythmic applications, drawing/painting, and traditional tests to demonstrate mastery of core principles, theories, and other material. Students demonstrated understanding of academic material through a "performance of understanding," as they taught concepts to classmates using their learning options.

Gigi & Judith (2004) focused on the use of the moviemaking approach to teach students language acquisition. Traditionally, language acquisition had focused primarily on two intelligences: verbal linguistic and logical mathematical. What was challenging about traditional methods was that students frequently do not feel connected to the process of learning a language. Video and computer games had served the purpose of honing nontraditional intelligences, with the important by-product of also preparing students well for the digital workplace. Verbal linguistics was naturally conducive to the acquisition process through reading, writing, poetry, literature, storytelling, humor, grammar, syntax, and metaphors. Also conducive to the language acquisition process were vocabulary activities, grammar skills, reading, oral presentations, debates, memorized facts, and pattern games. For the visual spatial intelligence, students could be encouraged to create mental pictures, develop strategies for reading, interpret and create maps, graphs and other diagrams, create craft and art projects, and make comparisons of artifacts from various cultures. Bodily kinesthetic intelligence could be addressed through role-playing, folk-dancing, drama, and total physical response. Musical rhythmic youngsters could be encouraged to write and sing songs and to remember information through music. Entertainment-education programs integrated the visual, verbal, logical, musical and audio learning by presenting a story that introduced language in the context of a melodrama. Beckwith (2007) emphasized that educational computer games could meet the needs of students in providing instruction when the multiple intelligences theory is used to demonstrate the different skills that games can draw on.
Oral & Dogan (2007) found out the effect of the course materials based on Multiple Intelligence Theory upon the intelligence groups' learning process. In conclusion, the results proved that the materials prepared according to Multiple Intelligence Theory have a considerable effect on the students' learning process. This effect was particularly seen on the student groups of the musical-rhythmic, verbal-linguistic, interpersonal-social and naturalist intelligence.

Gist of the above researches is that when daily classroom activities are planned in accordance with the MIT more children could be reached. Including variety of activities for a concept and preparing rich lesson plans can narrow down the gap between teaching and learning.

2.2 Development and implementation of intervention programme
Some schools have applied multiple intelligences (MI) theory to their curricula and have reported success in improving performance on achievement tests (Greenhawk, 1997; Kuzniewski et al 1998; Mettetal, et al, 1997). Greenhawk reported a 20% increase in students' scores on the Maryland School Performance Assessment after just 1 year of implementation of MI techniques across the curriculum. In that study, students were taught how to assess and use their own MI strengths and weaknesses and were encouraged to use a variety of intelligences to display their knowledge. Mettetal et al. demonstrated improvements in standardized test scores incrementally over a 2-year period in a suburban Indiana school, with a marked increase during the second testing period. In a study of students in 9th through 11th grades in suburban Chicago, implementation of MI strategies yielded improved scores in reading comprehension and math skills (Kuzniewski et al.).

Reena (2000) developed an intervention programme on multiple intelligences for young children (6-8 years). To fulfill this objective, a tool on Multiple Intelligence was developed consisted of seven components namely, Linguistic Intelligence, Logical-Mathematical Intelligence, Musical Intelligence, Bodily-Kinesthetic Intelligence, Spatial
Intelligence, Interpersonal Intelligence and Intrapersonal Intelligence. Standardization was done on a sample of 160 children from Hisar and Gurgaon city. The tool reported satisfactorily high reliability and validity coefficients. Means, standard deviations, percentile ranks and stanines were computed to describe the normative data. The developed multiple intelligence tool was administered on another 400 children of 6-8 years of age of Hisar and Gurgaon city. Majority of the children were found average in all seven components of intelligence except for musical intelligence. An intervention programme was developed to enhance the intellectual abilities of children. Out of 400 children, 70 children, 10 under each intelligence, were selected for administration of intervention programme. The results revealed the significant differences between pre and post intervention performance of children. The various factors identified at the micro, meso, exo and macro levels of children's ecological environment were found to be associated with children's performance on Multiple Intelligence Tool. It was suggested that timely identification and interventions should be arranged to enhance the optimum growth and development of intellectual skills of children.

Haley (2001) conducted a pilot study in two phases, to investigate applications of the theory of Multiple Intelligences (MI) to shape and inform teaching practices and instructional strategies in classroom. The study identified, documented, and promoted effective real world applications of MI theory in foreign and second language classrooms. Sample consisted of 15 teachers from foreign language and English as a Second Language (ESL) and 450 students of age group 14 to 18 years from six different states, namely Virginia, New York, Florida, Texas, Georgia, and Kentucky. The teachers participating in the study selected the students. In control group, instruction was mostly teachers- centered. Teachers relied heavily on the use of rote drill and memorization. There was no cooperative learning or group activities. Teachers were instructed to maintain standard classroom procedures for the “control” groups. Students in the experimental groups received instruction that incorporated MI theory. Results indicated that teachers were profoundly affected by these approaches. They felt that their teaching experienced a shift in paradigm to a more learner-centered classroom; they were once again energized and enthusiastic about their pedagogy; and they felt that they were able
to reach more students. For the pilot study, student achievement data were inconclusive. Although it is not a quick fix, MI theory can have a positive impact on both teachers and students.

Phase II attempted to study the impact of implementing multiple intelligences in daily classroom activities with 23 teachers of foreign language and English as second language and 650 students from 8 states and 3 countries. Methodology adopted was same as phase I. The effects of the MI intervention were documented through observations, exit slips, survey checklists, and student reactions. Results showed that students in the experimental groups receiving MI based instruction outperformed those in control groups. Teachers attributed this reaction to a greater degree of flexibility, variety, and choice that MI strategies allowed students in the classroom.

Hoerr (2002) presented how Multiple Intelligences (MI) was applied in the New City School in St. Louis, Missouri School and how to meet needs of children with different profiles. Implications of using MI for designing curricula were discussed. Multiple intelligences model implemented during the 1990-91 school years. At back-to-school in-service, the theory was discussed in depth and worked in teams to develop curriculum and units to address each of the seven intelligences. School opened by studying multiple intelligences in each class and building a developmentally appropriate vocabulary of multiple intelligences terms. Letters sent to parents explaining the theory and rationale for adopting it. In preschool, teachers created learning centers for each intelligence and documented, which centers children frequently use. With this increased attention to different kinds of learning, assessment needs were also changed. Alternative forms of assessment investigated including the use of student portfolios and videotape. Report cards redesigned to reflect multiple ways of learning in better ways.

Noble (2004) integrated Gardner's theory of multiple intelligences with the revised Bloom's taxonomy to provide a planning tool for curriculum differentiation. Teachers' progress in using the tool to plan and implement units of work through learning centers was documented over 18 months in two small elementary schools. They reported greater confidence in their ability to broaden their curriculum and cater for different students'
strengths across the multiple intelligences and intellectually challenge their students using first the original and then the revised taxonomy. The teachers saw their students as more successful learners as a result of this curriculum differentiation.

With the philosophy of the natural and supernatural power of all children, multiple intelligences, already important in education, has recently gained a different perspective. Özdener, and Özçoban (2004) carried a study, in which the project based learning model was compared with the traditional learning model. The study was formed in project based learning model, to understand the reflection of grouping of similar and different intelligence types on students' success. While the influence of areas of intelligence on project production was identified, the importance of students' individual interests, abilities, and intelligence areas has been observed. Pre-test and post-test group activities by considering the students' different intelligence areas were performed among 75, 6th grade students majoring in primary education. The results showed that the project based learning model had a positive effect on students' success and that choosing the proper teaching method suitable to students' individual interests and abilities is very important.

Al-Balhan (2006) conducted a research with middle-school Kuwaiti children to assess the effectiveness of student multiple intelligence styles in predicting students' improved reading skills through academic performance. A group of middle school students who had received first quarter grades and enrolled in an after-school tutoring program were studied, with half of the students in a traditional tutoring program and the other half in a Gardner multiple intelligence style-tutoring program. Results showed that the students in the experimental group (mean = 48.99), whose multiple intelligence was applied to learning, performed better overall for the academic year than the students in the control group (mean = 45.30) who studied using traditional teaching methodology. Gender, school type, and residential living area were all analyzed within the experimental group. The experimental group results show that, with regards to grades during each quarter period, female students attending private institutions living in suburban areas had greater reading improvement.
Ferrándiz et al (2006) aimed to study the psychopedagogical roots of the Multiple Intelligences model. Data obtained and analyzed in this empirical study carried out with 294 students of preschool and primary school levels. Spectrum Project, based on the Multiple Intelligences Theory was designed a procedure to evaluate the cognitive competence of children of early childhood. The psychopedagogical roots of Spectrum were those of the authors of the New School: Dewey, Montessori and Decroly. From the Spectrum, the evaluation of cognitive competence was centered on the individual and the classroom was a pedagogical laboratory where children were "learning by doing" (Dewey, 1899, 1906); work was organised in learning centres according to the interests and abilities of the students (Montessori, 1912); four main principles for education were highlighted: freedom, individualisation, activity and globalisation of teaching (Dewey, 1910; Decroly, 1929). The results showed the existence of seven independent constructs that fit with six intelligences evaluated and established by Gardner (1983); and that the learning center was a good procedure to teach children the knowledge, skills and attitudes implicit in the different intelligences, participating in a cooperative way.

Ozdemir, Guneysu, & Tekkaya (2006) investigated whether there was a significant difference between multiple intelligence instruction (MII) and traditionally designed science instruction (TDSI) on fourth grade students' understanding of concepts associated with the 'Diversity of Living Things' unit. Students' intelligence types were also examined. There were two randomly-selected classes of 35 students of between 9 and 10 years old. The experimental group was instructed through Multiple Intelligence strategies while the control group employed traditional methods. The assessment tools were the Diversity of Living Things Concepts Test (DLTCT) and the Teele Inventory of Multiple Intelligences (TIMI). Before treatment, no statistically significant difference between the groups was found in terms of understanding of diversity of living things concepts. After treatment, independent t-test analysis indicated that MII produced significantly greater achievement in the understanding of diversity of living things concepts (p<0.05) and on students' retention of knowledge (p<0.05). The results of TIMI revealed that fourth grade students' most dominant intelligence was logical-
mathematical intelligence both before and after treatment. However, after treatment, some variations were observed.

Temiz & Kiraz (2007) conducted a study to find out whether the implementation of Multiple Intelligences theory (MIT) had any effect on Literacy Education (LE) and to explore first graders' tendency towards the course and the teachers. The qualitative data were gathered from first grade classroom with 26 students, five first grade teachers from Baskent University College Ayse Abla Schools, and four first grade teachers from Gazi University Foundation Private Primary School. Data collected through interviews, observations, students' drawings and writings about the LE, students' portfolios, photographs, written document and Teele Inventory for Multiple Intelligences (TIMI) and analyzed by employing descriptive and content analysis techniques. Results underlined the fact that the effects of the MIT on the first graders' LE and tendency towards the course and their teachers were positive. In addition, some variations were observed in terms of the students' multiple intelligences throughout the LE.

Tracey & Richey (2007) in developmental research study aimed to construct and validate an instructional design (ID) model that incorporates the theory and practice of multiple intelligences (MI). The study consisted of three phases. In phase one, the theoretical foundations of multiple Intelligences and ID were examined to guide the development of such model. In phase two, the model components were determined and an initial model was constructed. In phase three, the model was reviewed and validated by experts in the field of ID through a three-round Delphi study. The result was a revised and validated in Multiple Intelligences Design Model.

Education has been the platform of many individuals in and out of politics. Often, the topic is focused on school test scores, student achievement, and the demand for highly qualified teachers in the classroom. The No Child Left Behind act of 2001 mandates school systems to adhere to a curriculum that promotes academic growth. Therefore, teachers must incorporate strategies that will lead to increased academic performance. In a quantitative research, Douglas et al (2008) examined how Multiple Intelligence (MI)
and Direct Instruction (DI) methods affected the achievement scores in Mathematics. The participants for this study were eighth graders \( (N=57) \) at a public middle school in North Carolina. There were two groups, an experimental group \( (N=28) \) and a control group \( (N=29) \). In terms of gender, there were 15 (54%) males, 13 (46%) females in the experimental group, 14 (48%) males, and 15 (55%) females in the control group. The results suggested that performance on a post mathematics assessment for students exposed to MI shown considerable increase when compared to those taught using DI. On an average, the students who received the treatment, Multiple Intelligence teaching practices, scored approximately 25.48 points higher on the pre-test than the post-test, as compared with 17.25 points for the control group.

Researches based on developing and implementing intervention plan on MIT has proved increased academic achievement in the children. It also accentuates schools to change the existing traditional pedagogy to broader spectrum pedagogy.

3. Multiple Intelligences assessment

Maker, Nielson, & Rogers (1994) developed DISCOVER, which is a process for measuring problem solving in regular elementary classrooms incorporating Multiple Intelligences. Results reported over a three year period suggested that the DISCOVER process successfully identified male and female gifted children who closely represented the diverse communities from which they came. Three intelligences were mainly assessed with this tool: spatial, logical-mathematical, and linguistic. Inter-and intrapersonal intelligences were assessed through observations.

Kornhaber (1999) investigated three alternative assessments for identifying students, each was said to draw on the theory of multiple intelligences and to increase the identification of traditionally under-served youngsters. First, DISCOVER, which included a checklist, which was organized by different intelligences: linguistic, spatial, logical-mathematical, interpersonal, intrapersonal, bodily-kinesthetic. Second, The Problem Solving Assessment (PSA), which discussed each child's work within the linguistic, logical-mathematical and spatial areas. The last, The Gifted Model Program, in which Multiple
Intelligences (MI) was introduced into "identification through teaching" via an enriched curriculum that included hands-on science approaches, and classroom centers that incorporated various intelligences (e.g. a drama center, a construction center, a movement center). It was also introduced into identification through teaching by an MI Checklist, which was developed specifically for the teachers in the Gifted Model Program. Qualitative data were analyzed against a framework of eight criteria. This revealed that no assessment met all eight criteria; each met a different subset of the eight.

Karma and Ghada (1999) studied an application of a Multiple Intelligences-based approach to assessment and educational practice in early childhood years, the Spectrum Project, in a Lebanese kindergarten. A control group design was used. The Spectrum activities were manipulated for the whole academic year for 150 kindergarten students (75 girls, 75 boys), enrolled in one branch of a private school, while the other branch of the same school worked with the regular curriculum. The purpose of the study was to determine if, through assessment of those activities, a profile of children's abilities, strengths, and weaknesses could be identified. Means and standard deviations for every activity were reported. An examination of the number and percentage of students who showed strengths (+), weaknesses (-), both (+ and -), or none. Results revealed that more than half the children (51%) had profiles made up of strengths and weaknesses, 25% exhibited strengths only, 19% exhibited weaknesses only, and 7 children did not show any strength or weakness. Accordingly, 95% of the children showed a distinct profile of abilities as early as kindergarten. A second purpose was to investigate the relationship between the different domains or intelligences. Pearson product-moment coefficients were computed. Results showed that there were some correlations, although low, between some of the different intelligences. Finally, the difference in the end-of-year achievement between the experimental and the control group was investigated. The results of the t test did not reveal any significant differences in mean teacher ratings between the experimental and control groups at the end of the year. The data were discussed in terms of cross-cultural interpretations.
Hopper and Hurry (2000) discussed the effects on pupils’ learning of using Howard Gardner’s theory of multiple intelligences. It was based on explorations carried out in a project ‘using multiple intelligences in the classroom’. The project aimed to focus equally on teachers’ individual professional development and the learning experiences and development of the pupils involved, and was carried out with teachers in local primary and secondary schools, across a wide range of subjects. Eight months project undertaken at Edge Hill, the 7 secondary teachers and 3 primary teachers involved were unfamiliar with Gardner’s Multiple Intelligence Theory and its potential for use in the classroom. Through a planned schedule of training, teachers were introduced to the theory, and ways of approaching learning through the intelligences. Workshops gave teachers opportunities to explore their own intelligence profiles, to gain an understanding of the theory and formulate action plans for exploring the use of MI theory in their classrooms. Although the major part of the project was actively carried out in schools, the group met together at regular intervals to share experiences and refine their action strategies. To explore using the intelligences in their classrooms, teachers adopted several approaches: used Gardner’s theory as a legitimate planning framework to offer students a variety of learning activities; Isolated each ‘intelligence’ into particular activities; Included specified intelligences in specific lessons, to ensure that all intelligences were covered over a period of time. Incorporated all intelligences in all topics covered.

Results showed increased awareness about the learning process: several teachers found they were able to ‘reach’ more pupils than through more usual routs, particularly pupils who had previously underachieved, and/or had difficulty grasping specific concepts. Increased emphasis on individual learning process: Students were asked to reflect on what they had learnt and how they had learnt through the activities. They were thus very active in monitoring their own learning.

Stimulating the active learning process: The pupils began to recognize that using diverse activities in lessons was not an end itself but a means of learning, and that different people learn in different ways, pupils’ motivation to learn dramatically increased.

Reid et al (2000) demonstrated that spatial, linguistic, and logical-mathematical intelligences were statistically significantly associated with the Matrix Analogies Test
(MAT; Naglieri, 1985), a nonverbal assessment used for making screening decisions for gifted programs. Assessment of intelligences was conducted through a Problem-Solving Assessment (PSA; Reid et al.), which involved standardized observation of a series of linguistic, logical-mathematical, and spatial problem-solving activities over a period of 4 hr. These researchers found that MAT scores were correlated with PSA scores, indicating moderate concurrent validity, but that the PSA yielded a higher referral rate to gifted programs (about 40%) compared with the MAT (about 17%). Furthermore, placement decisions were more highly correlated with performance on Multiple Intelligences (MI) tasks assessed by the PSA (.59-.74) than with MAT stanine scores (.43). This study suggested that MI theory can be applied to placement decisions, that alternative forms of measurement can identify more diverse groups of students as gifted, and that MI can be reliably assessed through observation of problem-solving activities.

Ashby (2001) presented views on the use of multiple intelligence theory for the assessment of early childhood curricula. According to the multiple intelligences theory, children have a distinct process of learning whereby they use different combinations of each of the eight intelligences to learn about and respond to the outer world. The author drafted a list of skills in each of the eight intelligences and identified preschool activities, which were helpful in developing each ability and to interpret a preschool curriculum.

Drawing on the theory of multiple intelligences and experience with an assignment in which students were asked to address course content in anything but an essay, O'Donovan (2003) considered the challenges and virtues of a creative format that does not relied exclusively on linguistic intelligence. The process, presentations, and evaluative approach employed in an assignment that called upon student creativity in a "Women and the Bible" course were described, and pedagogical and practical considerations explored. The analysis of a particularly memorable student submission revealed layers of complexity seldom achieved in a conventional essay format.

Diaz-Lefebvre (2005) focused on the multiple intelligences/learning for understanding program of the psychology department at Glendale Community College in Glendale,
Arizona for more than 3,400 students. Based on students' intelligences, the department chosen creative learning options to demonstrate mastery of core principles, theories, and other material.

With increased interest in the theory of multiple intelligences (MI), there is a need to identify and evaluate instruments designed to assess them. McMahon, Rose & Parks (2004) designed a study to evaluate the reliability of the Teele Inventory of Multiple Intelligences (TIMI) and the relationship between intellectual preferences and reading achievement. The TIMI was administered to 288 urban 4th-grade students. Results suggested that the TIMI subscales, which examine preferences for linguistic, logical-mathematical, interpersonal, intrapersonal, musical, spatial, and bodily-kinesthetic intelligences, were found to have poor to moderate reliability. Students with higher scores on logical-mathematical intelligence were more likely to demonstrate at or above grade-level reading comprehension scores compared with students who scored lower on logical-mathematical intelligence, but none of the other MI scales was predictive of student achievement.

Shearer (2004) addressed three interrelated propositions. First, a valid and reliable assessment for the multiple intelligences (MI) can be created. Second, teachers can use this MI profile to better understand, accept and create MI-inspired instruction and curriculum. Third, a MI profile can be used by both teachers and students to promote the use of strength-based learning activities to enhance instructional practice as well as personal development. This study was conducted in two phases. The goal of Phase 1 was to create and investigate the validity of a new assessment for the multiple intelligences, Multiple Intelligences Developmental Assessment Scales (MIDAS). The MIDAS was developed over a period of 6 years using a combination of rational and empirical methods of test construction using MI theory as a basis to guide interpretation of empirical results. Exploratory and confirmatory factor analyses of the MIDAS revealed that a large majority of its items load primarily on the one factor associated with their designated construct. The validity of the MIDAS had been examined via a series of investigations evaluating its construct, concurrent, and predictive validity. Results of these
investigations have included expected correlations between MIDAS scale scores and several matched abilities tests. Ecological validity was best established by examining criterion-referenced groups. The wide array of MIDAS data collected across all age groups and from a number of different cultural groups—both inside the United States and internationally (Chile, Denmark, Canada, Philippines) provided support for the theory's ecological validity. Sample for the research consisted of

A) 3,000 Middle School Student Groups.

B) High School Students: Seven different teachers at a small Catholic girl's high school were asked to select at least 10 of the 70 ninth grade students who demonstrated strength in a particular area.

C) Adult Occupational Group Comparisons: This study involved over 400 adults in 18 different occupational groups.

The results of many investigations indicated that respondents can provide a reasonable estimate of their profile of MI abilities so that a quantitative and qualitative description of one's intellectual and creative life could be obtained.

The goal of Phase 2 was to investigate how a MI profile might best be used by classroom teachers. This was a yearlong project involving six public school teachers at the primary and secondary levels and the researcher. Teachers met with the researcher individually two or three times per month and as a group on a monthly basis during the school year. After completion of their own MI profile teachers then engaged students in MI activities including profile verification, MI language, study strategies, career exploration, family communication, and curriculum development. Many of these activities were derived from a draft MI activity workbook developed by the researcher. Throughout the school year teachers made suggestions for the modification of this activity book to meet their classroom needs. At the end of the school year, teachers and students completed program evaluation surveys and were also interviewed. These interviews were transcribed and provided back to the teachers for their input and approval. Completed student workbooks were also reviewed. The goals of this pilot project were to determine if the use of the MI assessment (and subsequent interpretative activities) by both teachers and students could develop MI awareness, promote acceptance of MI theory, and increase the use of strength-based MI-inspired learning activities.
The data collected indicated that valid MI profiles can be obtained and that this information may be used by both students and teachers to further students' educational agendas. There appeared to be several strengths of this assessment-discussion process. First, Intrapersonal competence was enhanced when teachers and students were made aware of their unique MI profiles and were given practical strategies and training for using their strengths to maximize learning. Second, the MI profile served as a tangible basis for engaging a student's immediate community in strength based, personalized educational planning. A unique feature offered by this approach was that the MI profile can be administered to and interpreted for large groups of students efficiently as opposed to other time-intensive, individualized systems. This enhanced the chances that the MI approach could be successfully adopted by large-scale public institutions and not exclusively by small, independent schools. Another advantage evident from this work was that the MI assessment is something not merely done to students but is a process that teachers, administrators, and parents can (and should) participate in as equal partners in a dialogue of discovery that puts the individual's strengths at the heart of the discussion.

Kocabas and Susar (2006) determined multiple intelligences of elementary school children in terms of some variables and compare multiple intelligences of parents and their children. This descriptive study composed of 4th and 5th grades students who have been educated in State and Private Elementary School in 2003-2004 Education year in Izmir. Sample of the study was consisted of 38 forth grade and 58 fifth grade students as a total 96 and their 192 fathers and mothers. In this research, likert type two kinds of scales were used in collecting data. Firstly, Scale of Multiple Intelligence for Children, developed by Selçuk (2002) was used. Its Cronbach's Alpha reliability coefficient was found to be 0.83. Secondly, Scale of Multiple Intelligences for Adult developed by Saban (2001) was used and its Cronbach's Alpha coefficient were found to be 0.97 for mothers and 0.91 for fathers. The data were analyzed by mean, t-test, analyses of variance in SPSS 10.0 computer program. In this study, it was seen that there were meaningful differences among means of groups' multiple intelligences. Means of parents' multiple intelligences was higher than that of the children. Its cause might be that multiple intelligences of children are being trained and multiple intelligences of children were not
clear yet. According to the gender, female students' musical-rhythmic intelligence and interpersonal intelligence were found meaningfully higher than those of the males. There were meaningful differences regarding logical-mathematical intelligence of 4th and 5th grades students. Fifth grade students had higher logical-mathematical intelligence than fourth grade students. It can be said that topics of 4th grades have been strengthened and repeated by fifth grade students. Students who had been educated in the private elementary school had higher musical-rhythmic intelligence than state elementary school students. It can be said that because of private elementary school had better educational environment in the point of view musical instrument, material and classroom, students' musical-rhythmic intelligence was developed. When multiple intelligences of mothers, fathers and children were compared, it was seen that for each intelligence domain, there were significant differences among groups.

Above studies pave the way for the future researches that valid and reliable tools could be developed which will help to assess MI profiles of both teachers and children. Various studies conducted shows that assessment based on MI revealed significant differences in the profiles of teachers, students and parents.

4. Gender

Furnham & Akande (2004) undertook a study in which a total of 421 parents from four Southern African countries (Namibia, South Africa, Zambia, and Zimbabwe) estimated their own and their children's multiple intelligences. There were consistent country and sex differences in self-estimates. Females gave higher self-estimates than males on all seven multiple intelligences.

Furnham & Mottabu (2004) examined differences in sex and culture between Egyptian and British university students in self- and parental estimations of IQ using Cattell's (1971) list of twenty multiple intelligences. A total of 151 British (59 male and 92 female) and 118 Egyptian (54 male and 64 female) students participated in the investigation. Males tended to estimate their overall intelligence and various multiple intelligences (verbal, aiming, numerical, originality and mechanical abilities) higher than
females. Egyptian more than British students believed, in sex and race differences in intelligence.

Loori (2005) conducted a study in which the differences in intelligences preferences of ESL male and female students were investigated. Ninety international students at three American universities took part in this study. The results showed that there were significant differences between males' and females' preferences of intelligences. Males preferred learning activities involving logical and mathematical intelligences, whereas females preferred learning activities involving intrapersonal intelligence.

Yuen and Furnham (2005) A total of 378 Hong Kong adolescents estimated their own and their parents' IQ score on each of Gardner's 10 multiple intelligences: verbal (linguistic), logical (mathematical), spatial, musical, body-kinesthetic, interpersonal, intrapersonal, existential, spiritual and naturalistic. They answered three simple questions concerning intelligence and intelligence tests. There was sex differences in eight of the 10 self-estimate except for verbal and interpersonal. Male participants gave higher scores than female participants. Factor analyses of the 10 dimensions yielded a two interpretable-factor solution: personal-social-spiritual intelligence and academic-arts-kinesthetic intelligence. There were consistent sex differences in the estimates of the academic-arts-kinesthetic intelligence factor for oneself, but not for parents, while there were sex differences in the estimates of the personal-social-spiritual intelligence factor for oneself and for mother, but not for father. The two factor scores were predicted by both gender and belief about intelligence.

Neto and Furnham (2006) examined gender differences and the influence of intelligence quotient (IQ) test experience in the self and partner estimation of 10 multiple intelligences. Portuguese students (N = 190) completed a brief questionnaire developed on the basis of an instrument used in previous research (Furnham, 2001). Three of the 10 self-estimates yielded significant gender differences. Men believed they were more intelligent than were women on mathematical (logical), spatial, and naturalistic
intelligence. Those who had previously completed an IQ test gave higher self-estimates on 2 of the 10 estimates.

Furnham and Bunclark (2006) undertook a study in which 141 British parents estimated their own, and one of their children's IQ on their overall intelligence as well as on seven multiple “intelligences”. Replicating previous studies, fathers gave higher self-estimates on overall, mathematical and spatial intelligence than did mothers. Factor analysis of the seven self-estimates yielded two factors: cognitive and non-cognitive intelligence and there was a significant difference on the former with fathers giving higher self-estimates than mothers. Parental estimates of children's overall intelligence were shown to significantly correlate with children's actual IQ score ($r = 0.44$), derived from standardized tests of verbal, numerical and perceptual ability. The male advantage for overall intelligence estimates, which was hypothesised, was shown for parental self-estimations but not for estimations of children's intelligence, which showed a female advantage perhaps because girls in this sample actually had higher IQs.

Neto, Furnham & Paz (2007) examined estimations of IQ using Gardner's list of 10 multiple intelligences. A total of 197 Macanese (90 male and 107 female) and 331 Portuguese (139 male and 192 female) students participated in the investigation. It was anticipated that there would be sex differences in self-rated mathematical and spatial intelligence, with men giving higher self-estimates than women; it was predicted that there would be cultural differences between Macanese and Portuguese, with the former awarding themselves and their parents significantly lower scores than the latter. Gender differences in both self-estimate and parents estimates did not occur in the Macanese sample. Portuguese gave higher self and family ratings than Macanese, as expected. Participants of both cultures rated overall intelligence of their father higher than that of their mother.

Oral (2007) studied the effects of Multiple Intelligences theory upon the success level of genders at three high schools in Kenya. In conclusion, a significant difference had not been found between groups for multiple intelligences and groups for pre-tests. In general,
the female student groups were more successful than the male student groups regarding post-test. However, this result did not cause a significant difference between the groups.

Female cartoonists use more text, include text more frequently, and also draw more panels. These differences were expected, because Differential Psychology has shown for a long time in a variety of cultures that, on average, women tend to perform better in tasks testing verbal intelligence whereas men perform significantly better in tasks that require spatial intelligence (Samson & Huber, 2007)

Kaur and Chhikara (2008) conducted a study with the aim of assessing the multiple intelligence levels among young adolescents and to study the sex differences in the levels. For this, respondents from rural area of Hisar district of Haryana state were selected. The total sample consisted of 200 respondents, in the age group of 12-14 years. The results of the investigation revealed that majority of the respondents were found to be having average levels of intelligence for all the nine components of multiple intelligences. Significant differences were observed in the mean scores of boys and girls for linguistic (z=2.44), logical (5.22), musical (4.45) and bodily kinesthetic (3.03) intelligences. It was found that in case of linguistic and musical intelligence girls took slight lead whereas boys were ahead of girls in logical and bodily kinesthetic intelligence.

Razmjoo (2008) aimed at investigating the effect of sex on language proficiency and types of intelligences. To fulfill this objective, 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). Moreover, the collected data were analyzed inferentially using correlation, regression analysis and independent t-test. The results revealed no significant difference between male and female participants regarding language proficiency and types of intelligences.
Saricaoglu & Arikan (2009) investigated the relationship between students’ gender and intelligence types, the relationship between particular intelligence types and students’ success in grammar, listening and writing in English as a foreign language and the relationship between parental education and students’ types of intelligences. Preparatory class students (n=144) attending Erciyes University’s School of Foreign Languages participated in the study and the data was collected through the Multiple Intelligences Inventory for Adults. Descriptive statistics, independent samples t-test analysis, correlation analysis and one-way analysis of variance (ANOVA) were used to analyze the data. Analysis of the data revealed no significant gender differences in the intelligence types held by the participants except for that between gender and linguistic intelligence which was positive. Negative but significant relationships were found between success in students’ test scores in grammar and bodily-kinesthetic, spatial, and intrapersonal intelligences whereas the relationship between musical intelligence and writing was found to be significant and positive. Finally, no significant relationship was found between parental education and students’ intelligence types.

Researches on gender difference indicated variations. Many researches exhibited clear pattern of gender differences, showing distinct significant profiles in male and female. However, few researches showed no significant gender differences.

4. Multiple Intelligences and preschool children
Cason (2001) reported the evaluation of a preschool nutrition education program based on the theory of multiple intelligences. Forty-six nutrition educators provided a series of 12 lessons to 6102 preschool-age children. The program was evaluated using a pretest/post-test design to assess differences in fruit and vegetable identification, healthy snack choices, willingness to taste foods, and eating behaviors. Subjects showed significant improvement in food identification and recognition, healthy snack identification, willingness to taste foods, and frequency of fruit, vegetable, meat, and dairy consumption. The evaluation indicated that the program was an effective approach for educating preschool children about nutrition.
Gemma (2001) presented information on the preschool children's perception of school and the importance of picture books in education of these children. Preschool children who come into contact with toys, television, videos, and picture books are exposed to ideas and images of school. Picture books are very important sources of learning for children. In these stories, the children are engaged in activities like playing with toys, painting, building with blocks, singing, preparing for snack time, and caring for pets. In these picture books, school is either a central theme or the stories are related to schools.

Beatty (2002) reported the use of multiple-intelligence theory by television networks to draw preschool viewers. Development of the channel Playhouse Disney, built around what Walt Disney Co. calls the whole-child curriculum; Example of the television program 'Dora the Explorer' on Nickolodeon, owned by Viacom Inc., which claimed it helps preschoolers exercise bodily-kinesthetic intelligence and spatial intelligence.

Miller (2007) presented information on the preferences of preschool children. It stated that three-year-olds have a special fascination with family themes and relationships, and they love dramatic play activities where they can be parents or doctors. Preschoolers also enjoy manipulating various forms of art media, such as paints and watercolors, and can become mesmerized watching what they create. Four-year-olds are fascinated by how things work, like why a tower of blocks falls down or sticks. Warner (2007) discussed how teachers could use themes to teach preschool children. Earlier teachers used to plan the entire curriculum, while emergent curriculums used by teachers encourage themes from children’s suggestions and use thematic units. Attention of children on one aspect of their environment, helped children gain more knowledge about it. In an effort to understand learner-centered instruction from the perspective of multiple intelligences (MI), the purpose of this second teacher action research study was to further investigate the use of MI theory in shaping and informing instructional strategies, curricula development, and alternative forms of assessment with second language learners. Results of the study indicated that students did achieve greater success rates when the MI theory was implemented.
Preschool years are very crucial in terms of learning. Children mainly learn through observation and hands-on-experience. Activities, learning center, thematic lessons and alternative forms of assessment based on MI help preschool children to develop affinity towards learning.

**Conclusion:**
To sum up, early identification of MI preferences in children and teachers provides an opportunity to plan and implement appropriate classroom strategies. Preschool years are crucial, providing enriching experiences contributes in enhancing intellectual skills in children. Researches indicated the importance of planning; implementing intervention programs based on MIT for teachers, and students, lead to higher academic success. Valid and reliable tools could be developed to assess the MI in teachers and children. Alternative forms of assessment could be developed instead of regular paper pencil method to explore the potential among children. Researches also pointed that the children differ in their pattern of multiple intelligences to solve the problems with respect to gender. As preschoolers are more receptive to the environment, researchers have suggested planning classroom activities keeping in mind eight intelligences as proposed by Gardner.