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A Preschool Program Based on Multiple Intelligences

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A Preschool Program Based on Multiple Intelligences

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Table of Contents

To my loving family

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Abstract

In this project, a program based on multiple intelligences was developed for the early childhood cycle based on the theory of multiple intelligences. It is a comprehensive program to be implemented in Lebanese schools to aid preschoolers in the development of the eight kinds of intelligences according to Gardner's theory. Data were collected using interviews with teachers and experts in the field of preschool education, as well as through observations of one daycare center and three preschool classrooms. A thorough review of the literature was also conducted to identify the components of MI programs developed in preschools in the West. The MI program developed in this project includes four sections: 1) MI teaching strategies to be adopted by preschool teachers; 2) MI curricula which duplicate the Spectrum Project activities and a checklist for teachers to determine children's intelligences; 3) A description of the MI classroom environment and of teacher-student interactions; 4) The role of parental involvement in the MI program.

CHAPTER ONE

Introduction

Contextual Background

Multiple Intelligences theory was founded by Howard Gardner in 1983. According to Gardner, individuals are capable of at least seven independent forms of intellectual accomplishment: linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, interpersonal and intrapersonal (Gardner, 1983). Gardner later added an eighth intelligence called naturalist intelligence to his list and half an intelligence that he called the existentialist (Gardner, Kornhaber, & Wake, 1996).

After years of research, Howard Gardner proposed a new theory and definition of intelligence. Howard Gardner's work around multiple intelligences has had a profound impact on thinking and practice in education, not only in the United States, but worldwide. In *Frames of Mind* (1983), Gardner formulated a list of seven intelligences that are only slightly interdependent. Typically, linguistic and logical-mathematical intelligences are valued in schools; musical, spatial, and bodily-kinesthetic intelligences are usually associated with the arts; interpersonal and intrapersonal intelligences are what Gardner called personal intelligences necessary for the understanding of self and others (Gardner, 1983).

MI has had indeed an important impact on education. Research has indicated that the application of such programs in early childhood years is beneficial; a positive correlation between early years' intervention and programs based on multiple intelligences exists (Silvern, 1988).

An example of the impact of MI on education is the Spectrum project in the US. The Spectrum project was developed by a research group at the Harvard graduate school of education

in 1967. The mission of this project is to understand and enhance learning, thinking, and creativity in the arts, as well as humanistic and scientific disciplines, at the individual and institutional level (Chen, Krechevsky, & Viens, 1998). The Spectrum project is an assessment tool conducted over time with a wide variety of materials in the child's own environment. It was tested in classrooms. It provides educators with an alternative assessment tool. The spectrum is composed of fifteen curriculum options, each of which taps into a particular set of intelligences. The cognitive abilities are examined through games, activities, and learning areas by recognizing abilities in music, movement, mechanical science and other areas that are not usually emphasized (Chen et al., 1998)

Another example of the impact of MI on education is the Gardner school, an independent school in Vancouver that was founded in 1995. The mission of this school is to motivate its community to actively seek knowledge and understanding, to think independently, to reason critically and to meet challenges confidently. The focus is on the learning process as well as on the exchange of ideas through collaborative work. The Gardner school's vision is the appreciation of each child as a unique individual with strengths, weaknesses, abilities, interests, and capabilities (Vialle, 1997).

A final example of the impact of MI on education is that many schools in Australia apply Gardner's theory of multiple intelligences in their academic programs. Gardner's theory has reformed teaching in Australia, particularly at the preschool and primary levels; it has shown a strong influence in a wide range of educational settings as well, including special education (Vialle, 1997). In sum, MI has had a significant impact on education not only in the United States where it originated, but also in many other countries as well.

The Purpose of the project

The purpose of this project is to develop a comprehensive program for the early childhood cycle based on the theory of multiple intelligences. The program includes a variety of resources, activities, materials, and checklists that teachers in Lebanon could use with children in their classroom. The purpose of this program is to foster the eight kinds of intelligences that Gardner has presented in his theory.

Rationale and Significance of the Project

This study is significant since programs based on multiple intelligences are needed for fostering the eight kinds of intelligences that Howard Gardner's theory proposes. Such programs are scarce in Lebanon. Furthermore, the topic is important because research has indicated that the application of such programs in early childhood years is beneficial; a positive correlation between early years' intervention and programs based on multiple intelligences exists. Evidence over many years has indicated that preschool programs as well as early intervention can improve both intelligence and achievement (Silvern, 1988).

Research Questions

The questions that guide the study are:

1- What components should a program for preschoolers based on multiple intelligences include?

2- How will this program be used to foster preschoolers' eight intelligences?

3- What are the perceptions of potential users (i.e. teachers, coordinators, and administrators) of such a program?

Operational Definition of the Variables

A program is operationally defined in this project as a fixed model developed for school teachers, coordinators and consultants to implement. There are many kinds of programs that represent different models; in this study, the model is a program that aims at fostering the eight kinds of intelligences in preschoolers. All the components of the program are based on multiple intelligences and will be used to enhance the eight intelligences identified by Gardner: linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, interpersonal, intrapersonal and naturalist (Gardner, 1999).

Preschool is an educational institution for children too young for elementary school. A preschooler is defined as a child below the official starting age for school, usually a child who is younger than five years of age. Kindergarten refers to preschool for children aged four to six to prepare them for primary school. Preschool teachers have the task of providing information or teaching skills about different subjects and materials to children from ages 3 to 6 years old (Elardo, Bradley, & Caldwell , 1977).

Head of preschool department or coordinator is defined as a person who arranges the elements of a complex whole, such as preschool department. This person negotiates and works with others, such as teachers and staff.

An expert is defined as a person with great knowledge or skill in a particular area and whose advice people seek, as he/she is typically well-known for his/her expertise in a certain field (Fraenkel & Wallen, 2006).

Research Design

This study is a qualitative inquiry; data were collected through interviews. Focus group interviews as well as individual interviews took place in three schools: Rainbow school, Golden school, and Silver school in Beirut, Lebanon. These are pseudonyms to protect the identity of the

schools. Random students' observations in early childhood classrooms also took place to enrich the study with additional data on the classroom environment and the intelligences nurtured by the teachers.

Sampling and Procedures

The sample included people and experts in the field of early childhood education from different educational institutions.

A focus group interview with approximately ten preschool teachers was conducted in order to discuss the theory of multiple intelligences and investigate the interviewees perceptions of the theory and its application in Lebanese schools. Data collected shed light on how educators conceive preschool setting based on multiple intelligences and whether they believe that such application might be beneficial to Lebanese children (See Appendix A).

Four individual interviews were conducted with preschool experts in three different schools (Rainbow, Golden, and Silver) and a university professor in Beirut. The first interview is a semi-structured interview with the consultant in Rainbow school. The interview is expected to last thirty minutes. The interviewee owns a daycare center and will be interviewed in her capacity as a consultant at the Rainbow school. The data collected through this interview served to compare between the two institutions-the school and the daycare with regard to whether multiple intelligences are enhanced in both institutions. This interview took place at the interviewee's own Daycare center. In addition, the researcher observed the classroom dynamics between the teachers and children which provides a first hand information at the setting and materials used at the daycare. The data served to gather information on the daily operation of the daycare center and observe the kinds of intelligences nurtured in children (See Appendix B).

The second interview was conducted with an expert in early childhood education. This person is currently a teacher at Golden school. She was the head of a preschool department a few years ago at a prestigious school in Beirut. Also, she has attended a conference on Project Zero, a project developed by Howard Gardner at Harvard on nurturing multiple intelligences in preschoolers. Upon her return to Lebanon, she gave a workshop to all preschool teachers and staff in Golden school about the project. The interview focused on the components of Project Zero and their possible application in Lebanon (See Appendix C).

The third individual interview was conducted with the preschool Director at the Silver school. This person conducted a study in June 1996 on the application of a multiple intelligences-based approach in the early childhood years, an application of the Spectrum Project in a Lebanese Kindergarten. The Spectrum project is an assessment tool conducted over time with a wide variety of materials in the child's own environment. It was developed by a research group at the Harvard graduate school of education in 1967 (Chen et al., 1998). The Spectrum project was tested in classrooms. It provides educators with an alternative assessment tool. The Spectrum project is composed of fifteen curriculum options, each of which taps into a particular set of intelligences. The cognitive abilities are examined through games, activities, and learning areas by recognizing abilities in music, movement, mechanical science and other areas that are not usually emphasized (Chen et al., 1998) .The interview with the preschool Director focused on the study she conducted on the application of the Spectrum project in Lebanon as well as on the results of the study (See Appendix D).

The last individual interview was conducted with a current instructor at one University in Beirut. This person is an expert in early childhood education. The interview focused on

children's characteristics at this specific age, as well as on the characteristics of the optimal preschool environment (See Appendix E).

Validity of the Sampling Technique

The sample may not be considered a valid representation of the population as it is a small sample. The sample consists of teachers and experts in three schools Silver, Golden, and Rainbow schools and one university in Beirut; therefore, the results of this study cannot be generalized to the larger population of experts in preschool education in Lebanon.

Instrumentation

The study includes three instruments to establish triangulation. The instruments are: a thorough literature review on the theory of multiple intelligences and its application in the classroom. The second source of data are interviews; a focus group interview and individual interviews will be conducted with teachers and experts in the field of preschool education. Finally, classroom observations of children in kindergarten is the third source of data used in this project.

Review of the Literature

The review of literature focused on an examination of different preschool programs, such as the Montessori program, the Waldorf approach, the High/Scope approach and the Bank Street approach. However, the focus was on investigating preschool programs based on Gardner's theory of multiple intelligences. Also, the Spectrum project, which is an application of the multiple intelligences approach in preschool, was examined as well. A review of the implementation of the Spectrum Project at a Lebanese kindergarten was included in the examination, too.

Multiple intelligences can be applied effectively in all countries around the world. For example, children in Cook Primary School in Australia belong to low socio-economic and non-English-speaking backgrounds. They were not expected to do well academically, but the principal of this school looked for ways to set aside negative expectations and enabled her students to reach their full potential. She found the answer in Gardner's theory of multiple intelligences (1983). After five years of adopting a multiple intelligences approach, Cook school started booming. Gardner's theory has reformed teaching in Australia, particularly at the primary level. It has shown a strong influence in a wide range of educational settings, one example of which is "Lift Off' (Vialle, 1997, p.66), which is an innovative television program produced by the Australian Children's Television Foundation. Designed for three to eight year-olds, the series honors all intelligences through its celebration of diversity and educationally stimulating segments. The program's success is reflected in the video and book packages developed to help early childhood teachers implement the multiple intelligences philosophy. Teaching approaches based on multiple intelligences are being implemented from preschool through university level. The theory is most widely used in preschools and primary or elementary schools because primary teachers are responsible for teaching all disciplines whereas high school teachers teach only one or two subjects. Nevertheless, the few high school teachers who have adopted the approach in Australia have found it to be a powerful way to activate student learning (Vialle, 1997). At other schools in Australia, teachers worked cooperatively and grouped their students into intelligence focus groups. Each group then undertook a relevant project for a number of weeks such as dancing or photography. Other teachers designed a range of activities for each intelligence with students rotating through the intelligences over a number of weeks; they called

it the “Brain-Flex program” (Vialle, 1997, p.68), emphasizing that students develop their different intelligences as they undertake various activities.

Interviews

A focus group interview is defined as a fairly homogeneous group of people who respond to a series of questions asked by the interviewer (Fraenkel & Wallen, 2006). A focus group interview took place with approximately ten preschool teachers at the rainbow school. The interview was tape recorded for accuracy and transcribed later. The researcher also took notes during the interview. The use of technology and note-taking are both necessary and complementary; none can be excluded (Fraenkel & Wallen).

Four semi-structured individual interviews that consist of five to ten questions were conducted with experts in the field. Concerning the individual interviews’ settings, the researcher left the choice to the interviewees since the setting or environment in which the interview takes place is influential. Conducting the interviews inside or outside the educational institutions is not a concern as long as a calm environment is secured in order to record the interview. The interviews focused on gathering data on the interviewee’s background or demographic information, experience and qualifications. The questions were asked in the order of simple to complex. Dichotomous questions that permit a yes-no answer when the researcher is trying to get a complete picture were avoided. The problem with dichotomous questions is that they do not encourage the respondent to talk; instead, open-ended questions were used to collect as much data as possible (Fraenkel & Wallen, 2006). Interviews were targeting information about experts’ experiences with the specific age group of children from three to six years old, their opinions regarding whether the eight kinds of intelligences could be fostered and identified in early years, and the kind(s) of intelligence(s) frequently developed at a young age. Additionally,

the interviews requested experts' opinion regarding the success or failure of the application of programs that are based on multiple intelligences in preschool years, and specifically in the Lebanese culture. The interviews were also targeting information about multiple intelligences, the Spectrum Project, and Project Zero.

Observations

In addition to interviews, data were also collected through classroom observations. Random students' observations in early childhood classrooms took place to enrich the study with additional data (one section of each, Nursery, KG1 and KG2). Each section was observed for three sessions, each of which extends for fifty minutes, during a two-week period. Discrete notes on paper were taken occasionally during observation whereas detailed note taking were taken right after the observation sessions. Two important aspects were emphasized; the first is the environment or the classroom's setting. The examination of a typical kindergarten classroom took place to investigate whether classrooms promote the development and enhancement of all eight kinds of intelligences (classroom materials, resources, games and centers). The second aspect to be observed is whether the teachers encourage and care about the development of the eight kinds of intelligences or whether they only focus on enhancing math and language (teachers/students interaction).

Validity and Reliability of Instrument

Each of the instruments used in this project allows for valid inferences since all satisfy the purpose of the study. The validity of an instrument determines the accuracy of the conclusions drawn from the results of the instrument (Fraenkel & Wallen, 2006).

To enhance validity, the interviewer took notes of personal thoughts and used a tape recorder to focus on the interviewees' facial and body expressions. Interviews provide

information based on interviewees' own perception and knowledge of a topic. They are usually true and reliable data since people are responsible for their own sayings. Data were also collected through classroom observations to enhance validity (Fraenkel & Wallen, 2006).

Reliability is defined as the extent to which data are constant when different instruments are used (Fraenkel & Wallen, 2006). Therefore, to increase validity and reliability, triangulation was used. Triangulation involves the use of three different methods of data collection. In this study, the three instruments are semi-structured interviews, observations, and a thorough literature review on the theory of multiple intelligences and its application in educational settings.

Data Analysis

Following data collection using triangulation, a qualitative analysis of all data sources was effected. The data from focus group interviews with preschool teachers and individual interviews with experts in the field were transcribed and categorized by themes. Reviewed programs served as the basis for the development of the MI program for preschoolers in this project. Classroom observations served that purpose as well. In addition, the Gardner school was examined for the purpose of developing similar material to be adapted to the population of Lebanese preschoolers. Finally, a program for preschoolers that is based on Gardner's theory of multiple intelligences was developed in this project. The program's components included instructions, materials, games, tools and checklists to be used by preschool teachers to foster the eight kinds of intelligences in preschool children.

Ethics

The interviewer gave the interviewees a clear explanation on the purpose of the study. This study did not cause physical or psychological harm to any of the participants since a

permission was granted to the interviewer before the interviews are conducted. After completion of the project, the developed program was shared with the interviewees upon their request.

Expected Benefits and Educational Implications

The program that was developed in this project could be applied in Lebanese schools with children who are three to six years old. Its purpose is to nurture children's multiple intelligences at an early age and in different areas. Teachers and parents would be able to apply the program with their students in schools and at home as presented in this project, thus providing caregivers with an effective tool for nurturing the eight different kinds of intelligences in children.

Limitations

The first limitation is that the program that was developed in this study will not be implemented. The program's instructions, materials, activities, games, and checklists will not be tested empirically. Therefore, its effectiveness cannot be determined in this current study.

The second limitation is that the data gathered from experts in interviews is limited to a few people only. Also, the study examines only three educational institutions; therefore, the results cannot be generalized to other schools.

Recommendations for Future Research

Further studies are needed to investigate the impact of this program on fostering multiple intelligences in preschoolers, given that only a few studies have been conducted in Lebanon on this topic; in addition, other studies must examine the effectiveness and educational benefits of applying programs based on the theory of multiple intelligences in Lebanese schools across the spectrum of all grade levels.

CHAPTER TWO

Review of Literature

The Theory of Multiple Intelligences

According to Gardner (1999), intelligence is much more than IQ, because a high IQ without productivity is not considered intelligent behavior, which is clear in his definition of intelligence. "Intelligence is a biopsychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture" (Gardner, 1999, p.34).

To qualify as"intelligence," Gardner (1999) has considered the particular capacity under study from multiple perspectives, consisting of eight specific criteria drawn from the biological sciences, logical analysis, developmental psychology, experimental psychology, and psychometrics. These criteria for "candidate intelligences" (Gardner, 1999, p. 36) are: the potential for brain isolation by brain damage, its place in evolutionary history, the presence of core operations, susceptibility to encoding, a distinct developmental progression, the existence of idiot-savants, prodigies and other exceptional people, support from experimental psychology, and support from psychometric findings.

For Gardner (1999), intelligence is multidimensional and consists of many elements rather than just one single entity described psychometrically with an IQ score. Individuals are different in the way they grasp concepts or in how they learn. People differ in their abilities, strengths, and potentials, therefore some people learn best when exposed to musical experiences and others learn better when they have the opportunities to express themselves (verbal intelligence).

Similarly, some individuals have high linguistic capabilities and others are better skilled at math (Carroll, 1978).

> "Since we understand that every child learns in many ways and each has his own interests and needs, we provide children with multiple access to a concept through their different intelligences or "smarts". We also do our best not only to provide a holistic curriculum but also to practice "differentiated teaching" inside our classrooms because we understand the differences in interests, needs, and learning styles among the learners" (Gardner, 1999, p.56)

According to Gardner (1983), linguistic intelligence includes the abilities to use vocabulary, do verbal analysis, understand metaphors, and comprehend and produce complex verbal material. Writers, poets, lawyers, and speakers are among those that Gardner sees as having high linguistic intelligence. Logical-mathematical intelligence consists of the capacity to analyze problems logically, carry out mathematical operations, and investigate issues scientifically; this intelligence is most often associated with scientific and mathematical thinking. Arithmetic, algebra, and symbolic logic all demand this form of intelligence. Musical intelligence involves skills in performance, composition, and appreciation of musical patterns; it is the capacity to recognize and compose musical pitches, tones, and rhythms. According to Gardner (1983), Mozart symbolizes a form of high musical intelligence.

The fourth intelligence is bodily-kinesthetic, and is defined as the potential to use one's whole body or parts of the body effectively and gracefully. This type of intelligence appears in athletes especially gymnasts, divers, and dancers, and is defined as having a high level of awareness and control of one's body. Spatial intelligence involves the potential to recognize and

use the patterns of wide spaces and more confined areas. It is seen clearly in the work of architects and engineers, who demonstrate unique spatial talents. Interpersonal intelligence, which is often referred to as social intelligence, is concerned with the capacity to understand the intentions, motivations and desires of other people; as well as interaction with family members, friends, employers, employees, customers, schoolmates and neighbors. This intelligence allows people to work effectively with other members in a society. Educators, salespeople, religious and political leaders and counselors all need well developed skills in interpersonal intelligence in order to succeed in their work. The final intelligence is intrapersonal intelligence, which is the form of self-knowledge often seen in people with awareness of their own strengths, weaknesses, feelings, desires, fears, motivations and their need to be happy.

More recently, Gardner (1999) has identified one and a half additional intelligences: the naturalist and existentialist respectively; he has evaluated these two intelligences in the context of the eight criteria established for what constitutes intelligence. For Gardner (1999), the core of the naturalist intelligence is the human ability to recognize plants, animals, and other parts of the natural environment like clouds or rocks. For example, humans are able to distinguish between cars and jewelry because our ancestors were able to differentiate between carnivorous animals, poisonous snakes, and flavorful mushrooms (Hoerr, 1998). Gardner defined the naturalist as a person “who demonstrates expertise in recognition and classification of the numerous species-the flora and fauna- of her/his environment” (as cited in Hoerr, 1998, p.1). Naturalist intelligence enables human beings to recognize, categorize and draw upon certain features of the environment.

In western culture, the word naturalist is readily applied to those with extensive knowledge of the living world (Gardner et al., 1996). On the other hand, Gardner (1999) is less

sure about how to define and incorporate the existential intelligence, suggesting that it is difficult to come to any consensual definition of this half intelligence. Nevertheless, his attempts to define the Existentialist have led him to speculate that a person with insight and high interest in the meaning of life would be someone who possesses a high level of this intelligence.

School Application of the Theory of Multiple Intelligences

Douglas, Burton, & Reese-Durham (2004) compared the effectiveness of the two teaching strategies of Multiple Intelligence (MI) and Direct Instruction (DI). The MI teaching strategy consisted of the involvement of students in real and relevant tasks, rather than a focus on content area knowledge. Unlike MI, DI consists of drill and practice within the content area. The sample of this study included 60 eighth-graders in a public school in North Carolina. The students were divided into two groups: the experimental and control groups. They were given the same lesson objectives, goals, materials, and tests during the same duration, except that the experimental group received instruction using the MI strategy, whereas the control group was taught using DI. The results showed that the students who were taught in an environment utilizing the MI strategies achieved higher academic math scores, had better behavior, in addition to more emotional and social well-being. The researchers concluded that a curriculum that revolves around MI is more beneficial than one that focuses only on DI.

In another study on attitudes toward an MI curriculum, Mettetal, Jordan, & Harper (2001) examined the attitudes of teachers, students, and parents toward MI in general, and toward an MI curriculum in particular. The study explored the feedback of teachers, parents, and students on integrating the different multiple intelligences in a curriculum for a K-5 elementary school in central northern Indiana. Different modes of integration were set up, such as rooms that contained games and activities that stimulated each of the seven intelligences, and choice centers

were available for students to work on activities where each of the intelligences were used. The results showed that teachers, parents, and students accepted the concept of multiple intelligences with generally positive reactions to the school wide implementation of the MI curriculum. Some teachers planned a variety of activities in which all children participated; while others allowed children to choose their own activities. In sum, although administrators and teachers agreed on the value and importance of an MI curriculum, implementation was slow and had mixed reactions.

Teachers, parents, and students were positive toward this concept; they believed that such a curriculum increased self-esteem, which in turn improved performance in general, including performance on standardized tests. For instance a fifth grader said: “it gets you so that you’re not putting anybody down- you’re not putting yourself down!” (Mettetal et al., 2001, p.5). Overall, the benefits of MI were found to be valuable and worthy of a curriculum that suits each school’s philosophy and culture. Researchers concluded that based on a larger research and informal observations that followed the original study, MI curricula were beneficial. The study showed that schools need to raise awareness regarding the different kinds of intelligences to capitalize on each student’s strengths (Mettetal et al., 2001).

In an extensive literature review, Margaret and Diane (2003) described a project that was implemented to make curricula more interesting to improve students’ intrinsic motivation. Lack of motivation was evident in a sixth grade reading class in a rural setting, due to traditional rote learning as shown in incomplete assignments, low test-scores, and disinterest in subject matter. Therefore, a project that aimed at changing teaching styles revealed to be successful, since all the students benefited from choosing how they learned and the focus was on their strengths to achieve their learning goals and objectives. According to Chapman (1993), if teachers are aware

of instructional strategies that provide a greater variety of approaches using the same materials, then student motivation and performance would improve. To Gardner (1983), all individuals are born with a blend of the eight different intelligences; however, cultural differences lead to the development of some of the intelligences more than others. Therefore, students need to be aware of each of the intelligences to build on their strengths and improve their weaknesses. If students are trained to make their own decisions about their learning, then different intelligences will improve. When a student is asked to present certain material but is given the choice to do so in his/her own way, this will help boost his/her confidence, motivation, and performance. Finally, several studies have shown that there is a positive correlation between the MI approach, student autonomy, cooperative learning, and students' performance and intrinsic motivation (Margaret & Diane, 2003).

Daniel (1997) argued that what motivates students to perform in school is the students' discovery of their own capacity to present successful work. The most significant way to achieve this goal is to incorporate MI in the curricula, in order to give all students a chance to demonstrate their real potentials. The curriculum needs to include different types of activities that tackle the eight different intelligences; this way, not a single student would feel left out or disregarded; instead, students will feel they have a role in the classroom, as well as boosted confidence, better behavior and performance, which are imperative in raising well-rounded students and citizens in society (Mettetal et al., 2001).

Margaret and Diane (2003) have asserted that schools and parents focus mostly on the verbal/linguistic and logical/mathematical intelligences, which excludes students who are not as strong in those areas. Therefore, it is necessary that the curriculum includes a wide variety of activities that tackle all the intelligences (Douglas et al., 2004). Giving students choices in

modes of achieving the same content goals and objectives helps them to excel in their studies. For instance, if students were asked to prepare a presentation about a book they have read, one student might choose to write a traditional book report (verbal/linguistic), another might choose to write a rap song about the main character, setting, or plot (musical/rhythmical), and another student might choose to design an attractive display with paintings and symbols (visual/spatial). Students are supposed to be given different options to choose from according to their interests and strengths. Therefore, incorporating multiple intelligences in the curricula might be hard work for some teachers and parents, but not for the students since multiple intelligences programs cater to their needs, interests, and strengths.

Parents might hesitate at first, but when teachers work hard to develop creative activities that cover all intelligences and abilities, parents might approve of a curriculum based on MI. However, some parents believe that schools use their children to experiment with educational reforms (Daniel, 1997). Yet, if the suggestion of incorporating MI in the curricula is clearly explained to both teachers and parents, they will begin to feel more comfortable about it, and they may actually consent that such curricula are beneficial and positive (Mettetal et al., 2001).

Chapman (1993) and Sternberg (1996) argued that cultural differences and other factors, such as the environment, play a role in developing student intelligence. If the MI approach to learning is used, content areas may become more meaningful and valuable to students, which will improve their motivation to learn, thus leading to progress in performance and behavior. Researchers have noticed that when students stop worrying about the outcome, they tend to perform better (Chapman, 1993). Students are supposed to be given the chance to be responsible for their own learning; however simply giving students the information will not help them make use of it. Giving students rigid instructions without differentiating and taking their interests and

needs into consideration will lead to a boring atmosphere, which in turn will hinder the teaching/learning process. Thus, incorporating different intelligences in the curriculum to improve students' learning and performance is required (Douglas et al., 2004).

Traditional Views of Intelligence

Cognitive abilities are the intellectual skills and capabilities used in dealing with abstractions, problem solving, and learning. Typically, they are measured using tests that include questions and exercises that necessitate individual responses. These questions are arranged in ascending difficulty, while the responses to these tests are scored as right or wrong and are given a certain number of points. An example would be the Stanford-Binet scale, which was the first successful intelligence test (Agee & Crocker, 2002).

According to Guilford (1985), Karl Pearson laid the foundation for a scientific method for studying human discrepancies. He devised the correlation method and its coefficient of correlation. Following his footsteps was his student, Charles Spearman, who became the father of factor analysis. Spearman proposed two-factors of intelligence with a universal factor: "g" for general, and "s" for specific. Guilford (1985) also stated that during the 1930's, Thurstone's general theory conceived of intelligence as a multidimensional phenomenon, each dimension representing a unique mental ability. Thurstone's first analysis of intellectual abilities was introduced through several factors, seven of which were identified as verbal comprehension, numerical facility, spatial ability, perceptual speed, rote memory induction, and deduction. Thurstone called them primary mental abilities. In addition, Cattel and Horn defined the "crystallized" and "fluid" types of intelligences as acquired and culture-free, respectively.

According to Siegler (1992), Alfred Binet offered the world the first acceptable scale for assessment of personal intelligence. People who were worried about the nature of intelligence were concerned about whether human production was solitary or a collection of many different kinds of mental functions. Intelligence is defined as the power of learning, understanding, and reasoning, while mental ability is related to a person's high, average, or low intelligence. Scores on cognitive-ability tests tend to be highly reliable and consistent from year to year, especially after childhood. For younger children, the reliability of the tests is not as high as it is for older ones, since at older age levels, the fluctuation in results decreases (Bradley & Caldwell, 1980).

Modern Views of Intelligence

Three leaders and their theories introduced new definitions and conceptualizations of intelligence, in addition to their contributions to the field: Robert Sternberg's "Triarchic Theory of Human Intelligence," Howard Gardner's "Multiple Intelligences Theory," and John B.Carroll's "Human Cognitive Abilities."

Robert Sternberg is best known for his innovative study of human intelligence. Throughout the 1970's, Sternberg's research focused on the analytical processes involved in taking intelligence tests, such as the "Sternberg Test of Mental Ability." After additional research and a study of existing theories of intelligence, Stemberg published his findings in an innovative 1985 book called *Beyond IQ: A triarchic theory of human intelligence*. His Triarchic Theory posited a three-part model for describing and measuring mental ability: analytical, creative, and practical abilities. The analytical ability includes abilities such as analysis, comparison, evaluation, judgment or assessment. The creative ability includes creation,

invention, imagination, supposition or design. The practical ability includes use, put into practice, implementation, or showing use (Sternberg, 1986).

One of Sternberg's most important contributions to intelligence theory has been the redefinition of intelligence to incorporate practical knowledge. As Sternberg (1986) argued, "real life is where intelligence operates and not in the classroom" (p. 34). In his view, the true measure of success is not how well one does in school, but how well one does in life. Sternberg's discoveries and theories have influenced cognitive science, and have resulted in the re-thinking of conventional methods of evaluating an individual's intelligence. He has developed the "Sternberg Multidimensional Abilities Test," a test of intelligence based on his Triarchic Theory of human intelligence. For Sternberg (1986), there is often no correlation between people's IQ and how well they solve practical problems.

The second modern theory of intelligence is that advanced by Howard Gardner. After years of research, Gardner (1983) proposed a new theory and definition of intelligence. Gardner's work around multiple intelligences has had a profound impact on thinking and practice in education, especially in the United States. In his book *Frames of mind: The theory of multiple intelligences*, Gardner (1983) formulated a list of seven intelligences that are only slightly interdependent. The linguistic and the logical-mathematical intelligences are typically valued in schools, while the musical, bodily-kinesthetic, and the spatial intelligences are usually associated with the arts. The interpersonal and intrapersonal intelligences are what Gardner (1983) referred to as "personal intelligences" (p. 36). More recently, Gardner (1999) has identified one and a half additional intelligences: the Naturalist and Existentialist respectively, and has evaluated these two intelligences in the context of the eight criteria established for what constitutes multiple intelligences.

Finally, Carroll (1993), an American psychologist, proposed a "three-stratum" psychometric model of intelligence that expanded upon existing theories of intelligence. The model specifies the kinds of individual differences in cognitive abilities, and how these differences are related to one another. Basically, the model postulates that fairly large numbers of distinct individual differences in cognitive ability exist, and that the relationships among them can be derived by classifying them into three different strata. The first stratum includes the narrowest abilities; one example is general-sequential-reasoning ability; a second example is printed-verbal-language-ability, consisting of vocabulary knowledge and reading comprehension; a third is spatial-relations-ability. The second stratum includes the broader abilities, such as crystallized intelligence, fluid intelligence, broad visual and auditory perception; retrieval ability; cognitive speediness; and processing speed. The third stratum, which consists of a single general ability or general intellectual ability, similar to *"g"*, is needed to explain why the scores on all relatively distinct second-stratum abilities correlate positively with one another (Carroll, 1978).

Carroll was influential in the application of factor analysis to study cognitive abilities. During his career, he conducted seminal research in applied linguistics and has made significant contributions to the study of linguistics and the teaching of foreign languages, educational psychology, and individual differences in cognitive abilities (Carroll, 1978).

Research Studies on Preschool Programs and Intelligence

Evidence over many years indicates that preschool programs do improve both intelligence and achievement. Teachers cannot intervene directly in the homes of their students, except through programs of parent education and involvement; however, they can accomplish a

great deal through what they do at school. IQ and achievement can also be improved at school through early intervention programs (Silvern, 1988).

Attempts to improve cognitive ability were found to be more effective at earlier ages, which is why many intervention programs focus on nursery school children or early schooling (Silvern,1988). These programs have had many positive effects on children's social and emotional development, physical health, families and communities. For example, research on "Head Start" has shown that children enrolled in the program were more likely to be promoted to the next grade and less likely to be placed in special education classes (Silvern, 1988). Also, these programs have provided children with intensive experiences in cognitive and fine-motor development, social and self-help skills, and language and gross motor skills. In a study conducted on continuity and discontinuity between home and early childhood education environments, results showed that children who were involved in preschool programs that provided them with intensive practice in cognitive and fine-motor development, social and self-help skills, and language and gross motor skills, made more progress than preschool children who did not participate in such programs. Also, these gains were found to be long lasting and had positive effects on the children's intellectual development and their achievement in reading and mathematics. Moreover, children enrolled in the program had less need for special education programs (Silvern, 1988).

Many factors affect children's academic improvement and cognitive abilities; one of these factor is parental involvement. In the study on continuity and discontinuity between home and early education environment, a home-resource teacher provided parents with home activities to strengthen the children's reading and mathematics concepts taught at school. The results showed that this practice was helpful and improved children's academic achievement as well as

their cognitive ability (Parks & Smeriglio, 1986). In other words, the results revealed the importance of cooperation between the home and the school (Silvern, 1988).

According to Gage and Berliner (1998), the emotional and verbal responses of mothers, their involvement with the child, and their provision of appropriate play materials, were related strongly to psycholinguistic abilities (auditory, visual) and language competence (verbal expression, grammatical closure). Along the same lines, Lohman (1989), found that high-verbal level boys in comparison to low-verbal level boys had parents who had more positive interaction, higher academic achievement, and who provided their children with more opportunities for the use and development of language. In sum, parental involvement and high quality care seem to have a significant effect on infant developmental performance, especially in low socio-economic families.

Preschool Programs

The Montessori Program

This program was founded by the pediatrician and psychiatrist, Maria Montessori, in 1907. This school program emphasizes the importance and connection of all living things. Children learn to read, acquire language and mathematical skills, and they also learn about other cultures, animals, and plants. Teachers in Montessori school programs are called "guides," which means they are facilitators who believe that each child will learn at his or her own pace. The program encourages children to be independent; the guides' role is to ask children whether they want to try a task, or if they need help, or whether they feel they are not yet ready for doing a specific task. Guides also involve parents closely in their children's education. The teacher-student-parent bond is one of the most important characteristic of the Montessori program (Gage & Berliner, 1998).

The Waldorf Approach

Rudolf Steiner is the founder of the first Waldorf School in Germany in 1919. According to Steiner, a person is made up of three features: spirit, soul, and body. More than 750 Waldorf programs around the world have for purpose to develop these three elements in young children by immersing them in nurturing environments. Students are encouraged to engage in creative free play, rather than watch television and videos, or play computer games, because these activities do not allow for the use of all five senses. Waldorf teachers try to create a relaxing, homelike environment that gives children many opportunities to imitate freely what they see and to engage in creative play. Daily activities consist of coloring, painting, singing, reciting poems, baking bread, building houses out of boxes, using blocks, sheets, and boards, and dressing up and pretending to be parents, kings, and magicians in drama; all of these activities trigger the child's creativity and artistic side. The Waldorf approach tends to be more group-oriented than that of the Montessori school. Almost all children can benefit from The Waldorf program, including children with special needs who can bring something important to the group. However, the program is not recommended for children with severe learning disabilities (Gage & Berliner, 1998).

The High Scope Approach

This program is based on the theory that children need to be involved with people, materials, ideas, and events. It is a curriculum in which adults and children learn together. Like the Montessori program, the core belief is that children learn best by pursuing their personal goals and interests. In High Scope, however, children are encouraged to make their own choices about materials and activities; teachers are trained to support this independence and autonomous decision-making (Gage & Berliner, 1998).

The Bank Street Approach

The focus of this program is child-centered education. Teachers encourage children's development by offering different opportunities for physical, emotional, cognitive, and social growth. Bank Street programs are based on the belief that children learn at different paces and in different ways. In accordance with this approach, subjects are taught in integration, for example, biology concepts could be integrated into an English language classroom. Learning occurs in collaborative or cooperative groups. In the classroom, children usually play with toys and materials that develop their imagination, like blocks, water, art materials, clay, puzzles and other objects. Children are free to choose the kind of play they want to engage in, and whether they want to work independently or in groups; this helps them learn in their own way and at their own pace (Gage & Berliner, 1998).

The Spectrum Project

An example of the impact of MI on education is the Spectrum Project that originated in the United States. The Spectrum Project was developed by a research group at the Harvard University Graduate School of Education in 1967. The Spectrum Project offered an approach to assessment and curriculum development for the preschool and early primary years; it is based on the belief that each child exhibits a unique set of different abilities or intelligences. These intelligences are not fixed, but rather can be improved by educational opportunities such as an environment rich in stimulating materials and activities. The Spectrum Project's primary focus was on identifying children's areas of strength, thus developing them in individualized educational programs (Chen, Krechevsky, & Viens, 1998).

The aim of the Spectrum Project from 1984 to 1988 was to determine whether individual intellectual strengths could be identified and assessed in children as young as four years old. The

Spectrum Project researchers designed assessment activities in seven different cognitive domains: language, math, music, art, social understanding, science, and movement. The assessments were arranged in meaningful, hands-on activities, such as playing a bus game and telling a story with a storyboard (Chen et al., 1998).

From 1988 to 1993, the Spectrum Project researchers worked in public schools in Somerville and Roxbury, Massachusetts, in order to address the needs of children who were slightly older (grades K-2), including children who were at risk for school failure. During this time, they designed learning center activities that helped children develop key abilities in the eight cognitive domains. They also created a mentorship program based on the Spectrum Project approach in an inner city elementary school (Chen et al., 1998).

The Spectrum Project approach can be used in a variety of ways; it can be used as an assessment technique, as a set of engaging curriculum activities, or as a powerful component for intervention programs. In a broader sense, the Spectrum Project could help bring about important changes in the understanding of child development, appreciation of a child's strengths, and the creation of a favorable educational environment for children's learning (Chen et al., 1998).

In Lebanon, a study was conducted by a Lebanese woman at the American University of Beirut, in June 1996, as an application of a multiple intelligences-based approach to the educational practices of early childhood years (Maluf, 1996). In other words, the study was an application of the Spectrum Project in a Lebanese kindergarten classroom. The experimental group was at the Beirut campus, while the control group was outside of greater Beirut. The experimental group design consisted of spectrum activities given to students and applied for one

academic year by 150 KGI students (75 girls and 75 boys). Meanwhile, children at the other location of the same school followed the regular curriculum.

One purpose of this study was to examine whether through assessment of these activities and games based on the MI theory, a profile of children's abilities, strengths and weaknesses could be identified. A second purpose of the study was to investigate the relationship between the different domains or intelligences. Finally, the difference in the end of year achievement between the experimental and control groups was investigated. The results indicated that there is a high percentage of children who exhibited distinct profiles; also, low but significant correlations between some of the intelligences were found (linguistic, mathematical, and musical) and there is no significant correlations between some of the intelligences (spatial, bodily-kinesthetic, and interpersonal). Lastly, regarding the effect of the Spectrum's application, the study failed to show any modification or alteration in the end- of- year gradings. In other words, no significant differences were found in the achievement of children who followed the spectrum activities for one academic year and in that of those enrolled in the regular curriculum.

The Spectrum's approach gives children greater opportunities to fulfill their interests. Since the spectrum centers offer a variety of materials and modes of activities, the hypothesis of the study speculated that children will exhibit higher levels of involvement, interests and persistence, which implied a higher end of year rating. The results of the previously mentioned study, therefore, did not provide much support for the prediction of significantly greater gains in the end-of-year scores. One explanation might be that the study was conducted for one academic year only and as a trial period; significant gains in students' mastery of basic skills requires implementation of the program for a longer period of time.

The Gardner School

The Gardner School is an independent school in Vancouver, Canada, that was founded in 1995. The mission of this school is to motivate students to actively seek knowledge and understanding, to think independently, to reason critically, and to meet challenges confidently. The focus of the school is on the learning process, as well as the exchange of ideas through collaborative work. The Gardner School's vision emphasizes the appreciation of each child as a unique individual with particular strengths, weaknesses, abilities, interests, and capabilities (Vialle, 1997).

> "The MI approach prepares the child to be creative, critical, and divergent thinkers who are able to really "think outside the box". In our schools, we recognize that by teaching for understanding, our students are encouraged to problem-solve, to hone their skills, and to develop their individual strengths" (Gardner, 1983, p.60).

At the Gardner School, the main purpose is to identify each student's unique strengths and skills in order to help that student gain strong self-understanding and use that specific knowledge to strengthen his/her learning. The educational philosophy of the school is based on the work of the pioneer psychologist, Howard Gardner, who founded the MI theory. At the Gardner School, opportunities for students to demonstrate their unique intelligences from reading to drawing to leading a group are provided for each student. Instruction and learning focus on building skills in all of the intelligences. The arts and the sciences are core components of the curriculum. Classrooms are designed with different centers like a language center, math center, art center, music center and others, in contrast to the traditional classroom setups (Vialle, 1997).

One hundred students from preschool to 8th grade are currently enrolled, with a diverse staff that includes specialists in art, Spanish, music and physical education. The set up consists of mixed-age classrooms with low student to classroom teacher ratios. Students are expected to be respectful, cooperative and responsible learners; parents are expected to be active participants in their children's education. Teachers maintain frequent communication with parents and actively engage them in learning activities. Celebrations, student performances, special gatherings and other community events, provide opportunities for students, teachers and parents to build strong communities. Parents are welcome in the classroom and are encouraged to contribute their time and ideas into planning school events to enrich their children's education (Vialle, 1997).

Conclusion

The spread of MI theory in many countries around the world has brought growing attention to the importance of programs based on nurturing students' multiple abilities. Furthermore, the theory is important because research has indicated that the application of programs based on MI in early childhood years is beneficial and leads to positive gains (Silvern, 1988). Programs based on MI are needed for fostering the different intelligences that Gardner (1983) proposes.

Schools are a prime location for the implementation of these programs as children spend the bulk of their time at school. The school environment, as well as the content of instruction, have a significant impact on children's skills and abilities, especially in the early years. Therefore, a program based on MI developed specifically for preschoolers in Lebanon would be of significant benefit, given that such programs are scarce in Lebanon. The purpose of this

project is to develop a comprehensive program for the early childhood cycle based on the theory of multiple intelligences. The program includes a variety of resources, activities, materials, and checklists that teachers in Lebanon could use with children in their classroom. The purpose of this program is to foster the eight kinds of intelligences that Gardner has presented in his theory. The following two chapters describe the process of developing such a program; the last chapter provides an extensive description of the program itself with all its content and components.

CHAPTER THREE

Methodology

This chapter provides a description of the methods and procedures used for collecting data. Information on the sample, instrument, and procedures are included.

Research Design

This project was a qualitative inquiry; data were collected through interviews. Focus group interviews as well as individual interviews took place in three schools: Rainbow school, Golden school, and Silver school in Beirut, Lebanon. These are pseudonyms to protect the identity of the schools. Random students' observations in early childhood classrooms also took place to enrich the study with additional data on the classroom environment and the intelligences nurtured by the teachers.

Participants

The sample of this project included people in the field of early childhood education from different educational institutions: the head of the preschool department, the teachers, the school's consultant, the expert in ECE, the preschool director, and the university professor.

Instrument

The project included three instruments to establish triangulation. The three instruments used were: a thorough literature review on the theory of multiple intelligences and its application in the classroom; interviews consisting of a focus group interview (see Appendix A) and individual interviews with teachers and experts in the field of preschool education (see Appendixes B, C, D, and E); and finally, classroom observations of children in kindergarten (see Appendixes F and G). The observations focused on two aspects: Classrooms environment and teaching dynamics. All materials, resources, games and centers were inspected. Student/teacher interactions were also observed to examine whether teachers emphasized the nurturing of all

eight intelligences identified by Gardner. The items in the questions for the focus group and semi-structured interviews were constructed after examining the literature on multiple intelligences theory.

Procedure

Interviews

The data collection process began with a meeting with the head of the preschool department at the Rainbow School. I discussed the purpose of the project with her to have her approval for conducting the interview. Permission was directly granted from the head of the department for conducting and recording the interview, which was later transcribed. The interview was conducted in the school's coordinator's office for the duration of 20 minutes (See Appendix A).

A phone call was then made to the school consultant at the Rainbow School to inform her about the project, and request an appointment to conduct with her the semi-structured interview at her private day care center. Unfortunately, I could not reach the consultant due to her absence from the country; however, I was told that she would be returning to Beirut within one week. I called her one week later and made an appointment with her. The interview took place at her private daycare center and lasted 90 minutes, longer than expected due to the constant interruption from the staff and parents. The interview was recorded and discrete note taking took place as well (See Appendix B).

Next, I sent an e-mail to a teacher at the Golden School who is an expert in ECE asking her for an interview. That person was the head of the preschool department a few years ago at a prestigious school in Beirut, but had transferred to the elementary school department of the Golden School. She has also attended a conference on Project Zero, and gave a workshop to all

preschool teachers and staff at the Golden School about the project. In my e-mail, I included a clear explanation of the purpose of my project. She replied immediately and asked that the interview questions be sent to her ahead of time, which I did. A few days later, I conducted the interview with her. However, she did not allow me to record the interview since recording makes her feel uncomfortable. The interview lasted 30 minutes (See Appendix C).

Next, I sent an e-mail to the preschool director at the Silver School in which I included a clear explanation about the purpose of my project and asked for an interview. The director replied the next day and gave me the approval to conduct the interview with her. I sent her the interview questions ahead of time upon her request. The interview lasted 20 minutes and was tape recorded. I was also able to take notes directly during the interview (See Appendix D).

Finally, the last interview was conducted with a university professor, who is an expert in ECE. Upon her request, I sent her the questions ahead of time. She chose to answer them by e-mail rather than by a face-to-face interview (See Appendix E).

Observations

In addition to interviews, data were also collected through classroom observations. Random student observations in early childhood classrooms took place to supplement the study with additional data (one section of each level: Nursery, KG1 and KG2). Three classrooms were observed; each for three sessions. Each observation session lasted 50 minutes; all observations were completed within a two-week period. Discrete notes were taken occasionally during the observations, while detailed notes were written taking immediately after the observation sessions were over (see Appendix F). Student observations also took place at the daycare center for one day (see Appendix G). The purpose of all observations was to investigate whether multiple intelligences were nurtured at both the school and day care center.

The observations focused on two aspects: Classroom environment and teaching dynamics. All materials, resources, games and centers were inspected. Student/teacher interactions were also observed to examine whether teachers emphasized the nurturing of all eight intelligences identified by Gardner.

Validity and Reliability of Instrument

Each of the instruments used in this project allowed for valid inferences since all satisfy the purpose of the study. The validity of an instrument determines the accuracy of the conclusions drawn from the results of the instrument (Fraenkel & Wallen, 2006).

To enhance validity, I recorded verbatim the interviewees' personal thoughts and used a tape recorder to focus on their facial and body expressions. Interviews provide information based on interviewees' own perception and knowledge of a topic. They are usually true and reliable data since people are responsible for their own sayings. Data were also be collected through classroom observations to enhance validity (Fraenkel & Wallen, 2006).

Reliability is defined as the extent to which data are constant when different instruments are used (Fraenkel & Wallen, 2006). Therefore, to increase validity and reliability, triangulation was used. Triangulation involved the use of three different methods of data collection. In this project, the three instruments were semi-structured interviews, observations, and a thorough literature review on the theory of multiple intelligences and its application in educational settings.

Procedures for Reviewing the Literature

A thorough review of the literature was done to examine all aspects of MI theory and its application at the preschool level. The following components were emphasized:

1- MI teaching strategies: A review of related literature was done to identify teaching strategies based on MI that would be applicable at the preschool level. For example, at the Gardner School, children are considered to be decision makers. Opportunities for students to demonstrate their unique intelligences from reading to drawing to leading a group are provided for each student. A diverse staff that includes specialists in art, music and physical education are present at the Gardner school.

2- MI preschool curricula: The literature was reviewed to investigate MI preschool curricula based on MI that would be applicable at the preschool level. For example, at the Gardner School, the set up consists of mixed-age classrooms with low student to classroom teacher ratios. Students are expected to be respectful, cooperative and responsible learners. Instruction and learning focus on building skills in all of the intelligences. The arts and the sciences are core components of the curriculum at the Gardner school.

3- Classroom environment: The literature was reviewed to investigate MI classroom environment. Teacher-student interactions were reviewed to monitor the teachers' fostering or lack of the development of the eight intelligences that Gardner's theory holds. MI material that includes resources, games, and centers was reviewed as well. At the Gardner School, classrooms are designed with different centers like a language center, math center, art center, music center and others, in contrast to the traditional classroom setups.

4- Parental involvement: The literature was reviewed to investigate parental involvement in the MI program. For example, at the Gardner School, parents in the MI classroom are expected to be active participants in their children's education.

Teachers maintain frequent communication with parents and actively engage them in learning activities. Celebrations, student performances, special gatherings and other community events, provide opportunities for students, teachers and parents to build strong communities. Parents are welcome in the classroom and are encouraged to contribute their time and ideas into planning school events to enrich their children's education.

In sum, the review of the literature process focused on gathering information about MI theory and its application in the classroom; its purpose is to develop a comprehensive program for the early childhood cycle that nurtures the eight intelligences identified by Gardner.

CHAPTER FOUR

Results and Discussion

The aim of this project was to develop a comprehensive program for the early childhood cycle based on the theory of multiple intelligences. This program would aid preschoolers in the development of the eight kinds of intelligences according to Gardner's theory. This chapter provides the results of the data collected, which includes data from interviews with teachers and experts in the field of preschool education, as well as observations of early childhood classrooms and a daycare center. In addition, a comparison between the data collected and the review of the literature will follow. All interviews were transcribed and placed in appendixes (see appendix A, B, C, D, E). The results show that the development of an ECE programs based on the MI theory would be of significant benefit, as such programs are quite scarce in Lebanon. MI programs are needed in order to foster and expand the different intelligences according to Gardner's theory. Therefore, more awareness and training among ECE educators are needed during their pre-service obligations; also, schools need to raise awareness regarding the different kinds of intelligences to be nurtured within the classroom.

Components of a Preschool Program Based on Multiple Intelligences

The director of the preschool department at the Rainbow School believed that qualified and trained teachers, as well as a rich environment, are the components necessary for the success of a program based on MI. However, the teachers at the Rainbow School considered games, hands-on activities, and resources as what contributes to the success of a preschool. According to the school's consultant, the attributes of such a program should include a nurturing, rich, and stimulating environment, as well as qualified early childhood educators, a variety of applicable resources, a developmentally appropriate program, and a strong partnership with parents in the school's community. These results are congruent with the review of literature which states that

teachers should provide children with hands-on activities, and a rich environment to stimulate the eight intelligences of the MI theory (Mettetal et al., 2001). The literature review also stresses the importance of parental involvement in children's education, since it affects children's academic improvement and their cognitive abilities (Parks & Smeriglio, 1986). According to Silvern (1988), cooperation between home and school is important for an optimal development. Along those lines, at the Rainbow School, teachers maintained frequent communication with parents and engaged them actively in learning activities. Celebrations, student performances, special gatherings and other community events, provided opportunities for students, teachers and parents to build strong communication ties. Parents are welcome in the classroom and are encouraged to contribute their time and ideas into planning school events in order to enrich their child's education.

The school's director at the Silver School believed that adults must nurture a child's intelligence by providing games, activities, and everything he/she needs in any surrounding. This finding is congruent with the review of literature. The western literature revealed that different intelligences are not fixed, but rather can be improved by educational opportunities such as an environment rich in stimulating materials and activities (Chen et al., 1998).

According to the university professor who is an expert in ECE (see Appendix E), activities and programs that are based on the MI theory have positive effects on a child's cognitive abilities, as all areas of development and the different intelligences should be nurtured at a young age. In her opinion, children have a high ability to learn and are capable of learning numbers, relations, and music. These results are similar with the review of literature in that students who were taught in an environment utilizing the MI strategies achieved high academic scores (Douglas et al., 2004). In that study, researchers concluded that a curriculum that revolved

around MI was more beneficial than one that focused only on direct instruction that consisted of drill and practice within the content area.

Based on her personal experience with children, the university professor believed that a program based on multiple intelligences can foster and develop MI in children at a young age. She also stated that a program well implemented and based on knowledge about child development will lead to positive outcomes. She believed that some programs work better than others in certain areas and with some populations. Of significance, is knowing how to implement the MI program. These results are compatible with Gardner's view (1983) on how culture affects intelligence; he stipulated that all individuals are born with a blend of the eight different intelligences; however, cultural differences lead to the development of some of the intelligences more than others (Margaret & Diane, 2003).

In addition, the university professor believed that hands-on activities have positive effects on a young child's cognitive abilities. These results are congruent with the western literature in that the curriculum needs to include different types of activities that tackle the eight different intelligences; thus, not a single student would be left out or disregarded (Mettetal et al., 2001).

The university professor also stated that it would not be enough to just provide a variety of resources to children in terms of toys, manipulatives, arts and crafts, building blocks, books, and outdoor activities; what matters is how the teacher provides the opportunities for these materials to maximize the child's skills in all aspects of development, through which a teacher should be involved, observe, and adopt a child-centered approach. In her opinion, children have the ability to learn; the more the teacher gives, the more the children learn. These results were also congruent with the review of literature concerning the teacher's involvement in children's development through the High Scope program, in which both adults and children learn

simultaneously. Moreover, the focus of the Bank Street program, which is a child-centered approach in education, encourages the child's development by offering different opportunities for physical, emotional, cognitive, and social growth (Gage & Berliner, 1998).

Application of the MI Program

The director of the preschool department at the Rainbow School reported that the curriculum at the Rainbow School is not based on the development of MI, but teachers use a great deal of hands-on activities that include all kinds of intelligences. Moreover, the ten teachers in the focus group that were interviewed at the Rainbow School argued that all the activities they used in their classrooms aided in developing many intelligences in the children; there was an integration of every intelligence through games and activities.

According to the ECE expert (see Appendix C), MI can be used in an ECE classroom through learning centers, project-based learning, hands-on activities, and real life situations. These results are congruent with the western literature in which rooms that include games, activities, and real life situations stimulate the different intelligences. Hence, choice centers improve children’s performance in general, including performance on standardized tests (Mettetal et al., 2001).

Furthermore, the data collected through the observations of classrooms in the preschool department showed consistency with the MI classroom setup. For instance, the seven different centers that take place in Nursery, KG1, and KG2 classes (writing, reading, math, science, art, computer, and block centers) are part of an MI classroom design. The writing center that includes letter cards, alphabet wooden puzzles, and magnetic letters, allows children to read letters and construct words. The reading center, which is a small library containing stories in English, French, and Arabic, give students a chance to scan through the pages, recognize letters,

and read silently during quiet time. The math center, which includes magnetic numbers, cards, and a small white board, allows children to practice writing numbers, addition, and subtraction (for KG1, KG2 levels only). The science center, which includes pictures about the current theme such as four different seasons, insects, pictures of plants, and rubber animals, allows students to enhance their science knowledge and make new discoveries about nature. The art center, which comprises coloring crayons, paints, scissors, brushes, and construction papers, allows the children to draw, paint and cut paper during their recreation time, thus cultivating them artistically. The computer center incorporates a computer and entertaining educational games, which enhances the child's technological knowledge. The block center includes wooden blocks allowing children to erect towers and buildings during their recreational time, thus enhancing their spatial intelligence. These results are similar to the western research, since at the Gardner's school, classrooms are also designed to encompass various centers: a language center, math center, art center, and others. This setup allows students opportunities to demonstrate their unique intelligences from reading, to drawing, to leading a group (Vialle, 1997).

The observations also showed that nursery, KG1 and KG 2 classrooms include educationally enriching resources, such as a whiteboard with markers, wooden puzzles, floor puzzles, lacing materials, wooden blocks, various toys to enhance motor skills, educational games, anatomically correct plastic animals and insects, captivating stories, play-dough, colored crayons, and paints and brushes, all of which strengthen a child's cognitive abilities. These results are also in line with the Waldorf program that encourages students to engage in creative free play through daily activities consisting of coloring, painting, using blocks, and boards, all of which trigger the child’s creativity and artistic skills (Gage & Berliner, 1998).

Based on the observations that took place in the preschool department, homeroom teachers were found to focus mostly on students' verbal and mathematical development. Teachers placed the most emphasis on English language acquisition, learning letters, adopting proper phonetics, learning new words; as well as on numbers, colors, shapes, and sizes. This finding is compatible with Margaret and Diane's (2003) study which found that most schools focus mostly on the verbal/linguistic and logical/mathematical intelligences.

Potential Users' Perceptions of MI Program

In this section, the perceptions of teachers, coordinators, and administrators' of an MI program for the early childhood cycle were examined. The director of the preschool department at the Rainbow School believes that a program based on MI would certainly work in Lebanon. She stated that most of the new Lebanese schools that are professional and have good management methods were working on the development of MI in children; furthermore, private schools are able to develop these intelligences in their student population, especially schools that follow the American system of education. She also asserted that the Lebanese populace is one of the best educated in the world. Moreover, the school consultant confirmed that MI theory can be applied in all cultures. Additionally, nine of the ten teachers interviewed (see Appendix A) stated that the application of the MI theory in Lebanon depends to a great extent on the individual school. According to these teachers, change happens gradually; teachers can provide students with resources and activities to explore the areas of their strengths.

Only one teacher in the focus group interview at the Rainbow School had an objection to the concept of integrating MI theory into the curriculum. According to her, a program that is based on MI cannot be successful in Lebanon. She believed that the Lebanese give importance only to academic subject-matters; thus, they will not accept such a theory. In addition, she

mentioned that foreigners are more accepting of Gardner's theory, and that a program based on MI would work well in Germany and China, since people in those counties are more open-minded. Her answers and views were not compatible with those of the other teachers and experts interviewed for this project, since they all believed that MI could be applied successfully in Lebanon.

Furthermore, the director of the preschool department at the Rainbow School considered three to six-year-old children incapable of developing the eight kinds of intelligences, since children at this age are still too young to develop the various intelligences properly. In her opinion, children can mostly develop linguistic and mathematical intelligences, and some of the spatial, bodily-kinesthetic, and interpersonal intelligences through daily discussions and everyday situation. Similarly, the ten preschool teachers in the focus group interviewed believed that children at this age are capable of developing verbal and mathematical intelligences, spatial intelligence through the blocks center, and interpersonal intelligence through the "show and tell" activity. These results were not compatible with the western literature review that found that early schooling has had many positive effects on children's intelligence, social, and emotional development, as well as their physical health (Silvern, 1988).

One of the teachers at the Rainbow School believed that children can also develop the naturalist intelligence, because young children are little scientists who are always exploring and experimenting. Accordingly, children at this age like to discover new things, and have a great deal of knowledge about animals and plants. These results are congruent with the reviewed literature, such as the Montessori program which emphasizes the importance and connection of all living things; children learn to read, acquire language and mathematical skills, and they also learn about other cultures, animals, and plants (Gage & Berliner, 1998). On the other hand, all

the teachers interviewed, and the director of the preschool department considered children at this age as incapable of developing intrapersonal intelligence; they viewed children in this age group as being unfamiliar with themselves, and unaware of their strengths and weaknesses. However, they considered that children were capable of developing linguistic and logical-mathematical intelligences. These results were congruent with the results of Margaret and Diane (2003) who found that schools and parents tend to focus mostly on the verbal/linguistic and logical/mathematical intelligences of children.

On the other hand, the consultant strongly believed that a program based on multiple intelligences could foster and develop children's multiple intelligences even at a young age. She stated that different intelligences can be developed since birth, which is in agreement with the reviewed preschool programs based on MI. These programs were found to improve both intelligence and achievement in children (Silvern, 1988).

Moreover, she stated that a program based on MI would work in Lebanon since MI is universal. Additionally, the school consultant believed in Gardner's theory of multiple intelligences since the theory was well researched, and people were different and had their own range of abilities.

Similarly, the ECE expert was familiar with Gardner's MI theory; she thought that the theory was helpful in understanding human capabilities. In her opinion, MI helps teachers see children as individuals, not as groups; thus, capitalizing on the strength of each child.

In addition, the ECE expert thought that children are capable of developing more than one kind of intelligence at an early stage. She also believed that teachers play an important role in developing the different intelligences of children. If the teacher sits behind her desk, he/she is not helping the students develop many kinds of intelligences, but only their academic

intelligence. These results are congruent with Carroll's view (1978) that intelligence is multidimensional and consists of many elements rather than just one single entity described psychometrically with an IQ score. Furthermore, the ECE expert argued that teachers are apprehensive about change, and do not encourage progressive approaches. In her opinion, teachers should be made aware of the benefits of change through in-service trainings. Change should be implemented gradually as teachers need time to adjust to new approaches. This finding is compatible with the view of Mettetal et al. (2001) who argued that schools need to train teachers and raise their awareness regarding the different kinds of intelligences. Incorporating multiple intelligences might be difficult for some teachers, but not for the students, since MI programs cater to their needs, interests, and strengths (Douglas et al., 2004).

The ECE expert also concurred that a program based on MI would work in Lebanon, since it is research-based, and teachers are beginning to accept such programs. Moreover, the interviewed teachers had a positive attitude toward this concept as well; they believed that a curriculum based on MI would increase the self-esteem of student, which in turn would improve school performance in general.

Finally, the ECE expert described her previous experience with Project Zero as overwhelming. She attended a conference on Project Zero in August 2005, in Boston, Massachusetts, and discovered that it was an immense project. Project Zero emphasized teaching through the arts; therefore, she did not grasp it well since she was not an art teacher. She was interested in how to approach learning visually, and how children's thought processes evolve. The ECE expert admitted that she did not learn much about Project Zero, though she acknowledged that it was a memorable experience. Later, she stated that she gave a workshop about Project Zero to Golden School's teachers.

In her opinion, a program based on Project Zero needs documentation on the process of learning, not on the actual product as it emphasizes learning through art. Project Zero requires training, and discussions among the teachers on how to prepare for lessons, since teachers are mostly isolated and work independently. Teachers must document everything together with an integration of all the disciplines. In agreement with the literature, this suggestion of incorporating MI in the curricula is clearly explained to teachers (Mettetal et al., 2001)

The preschool director at the Silver School conducted a study in 1996 on the application of an MI program in Lebanon. According to her, ECE teachers were not against the application of MI. On the contrary, teachers were very enthusiastic about it; they were well prepared but surprised by what they encountered in the process. In her view, MI was still a new approach at the time of the study. These results are congruent with the literature review in that teachers accepted the concept of multiple intelligences with positive reactions to the school implementation of the MI curriculum (Mettetal et al., 2001).

In addition, the preschool director encouraged and recommended the application of the Spectrum Project in Lebanese schools since it was successful when she applied it at the Silver School thirteen years prior. In her opinion, MI is not related to cultural biases, so it can possibly work in Lebanon. These results are compatible with Margaret & Diane's (2003) study which showed that cultural differences lead to the development of some of the intelligences more than others. The school director claimed that the Spectrum Project might also work in private schools. In her opinion, there is nothing magical about MI; on the contrary, she considers it as age appropriate, and a friendly project.

According to the university professor, there is not one area of development that is more important than the other; all intelligences are important. Moreover, the MI program would work

in Lebanon in her view; MI can certainly be applied at any school if there is a proper understanding of child development, and a good understanding of the context in which teachers work. She argued that children's abilities for understanding are enormous although adults underestimate children's abilities at times. Children's growth and development will be hindered if teachers believe that children are not capable of grasping concepts because of their young age.

The university professor had doubts about people's understanding of child development and what is best for children. She also doubted people's understanding of age appropriate instruction. In her view, the societal and governmental demands are very intense for teachers in the early years' program. Since there is no national strategy or framework for early childhood development, many disparities exist in the implementation of programs across different regions in Lebanon. She also stated that training teachers in how to teach is more effective than the implementation of MI in the classroom since teaching is successful when the needs of children are understood and fulfilled.

Early Stimulation

According to the school consultant, all research today stresses the importance of early stimulation, which is congruent with the literature; evidence indicated that early intervention is being emphasized in many countries in the world, and preschool programs do improve both intelligence and achievement through early intervention (Silvern, 1988). As the owner of a day care, the school consultant advises parents to start taking their children to a day care at the age of 18 months, even if the parent(s) do not work outside the home. In her opinion, it is not necessary to expose children to a full day schedule. She estimates that it is extremely important for children to be exposed to a stimulating environment for optimal development. These results are compatible with Silvern's view (1988) concerning attempts to improve cognitive ability, which

were found to be more effective at earlier ages. These programs have had many positive effects on children's social and emotional development, physical health, families, and communities.

Similarly, the school consultant believes that attending a day care center makes a big difference in a child's cognitive abilities and achievement. However, she stated that it is not the day care in itself that enhances children's development; rather, what is important is a stimulating environment, whether at home, in a daycare, or out in the real world. The environment's stimulating aspects would increase the child's critical thinking, language skills, and ability to solve problems, thus affecting the child's intelligence positively. Such an environment is what matters as long as the four areas of development are emphasized: social, physical, emotional, and cognitive. These results are congruent with Silvern's view (1988) that children who were exposed to a stimulating environment and involved in preschool programs that provided them with intensive practice on cognitive and fine motor development, social and self- help skills, language, and gross motor skills, progressed more than preschool children who did not participate in such programs. Also, these achievements were found to be long lasting and had positive effects on the children's intellectual development and their achievement in reading and mathematics.

Based on her experience with this specific age group (3-6 years old), the university professor stipulated that the eight kinds of intelligences could be identified and fostered in children at this young age. By observing children, one can notice the child's intelligence; when a teacher focuses only on one aspect of a child's development that he/she considers important, he/she may neglect another strength that the child possesses. These results are congruent with Margaret & Diane's view (2003) that individuals are born with a blend of the eight different intelligences. Moreover, the university professor added that the teacher fosters different

intelligences within the child when he/she provides the child with resources, making use of those resources, while observing and keeping track of how the child progresses. She argued that when one observes and becomes aware of the child's needs, he/she will need to adapt the environment to meet the child's needs. These results are congruent with Daniel's view (1997) that the curriculum needs to include different types of activities that tackle the eight different intelligences.

Difficulties in ECE

According to the school consultant and the university professor, Lebanon still suffers from a lack of actual understanding of what early childhood education consists of. Education is more based on the formal schooling rather than on using developmentally appropriate approaches. Therefore, educators misunderstand early childhood education and children's needs. Moreover, the school consultant believes that qualified early childhood educators, proper formation at the university level, appropriate resources, and understanding of early childhood education at the national level are the missing components of ECE programs in Lebanon.

Suggestions and Recommendations

There is a need for future research to examine larger samples of schools, students, and ECE experts in many areas in Lebanon instead of only five educational institutions, few teachers and experts, observing three preschool classrooms, and one day care center. The instruments used to collect data were limited to interviews, observations, and a detailed review of literature. Using a variety of instruments for data collection ensures more accuracy of results such as questionnaires for teachers, coordinators, and experts, as well as parents' group discussions. Another recommendation which stems from the results of this project is that awareness programs

on the benefits of MI curricula need to be implemented in schools in order to familiarize teachers with this new concept and consequently increase such curricula in Lebanese schools.

Conclusion

In conclusion, the results of this investigation showed that the coordinators and ECE experts were aware of Gardner's theory of multiple intelligences, to the exception of some teachers. Moreover, all participants believed that initiating MI programs in Lebanon would be beneficial since such programs were found to be successful in various other countries. Also, most of the interview results were compatible with the reviewed literature. In conclusion, ECE experts in Lebanon should focus on increasing teachers' awareness in the benefits of implementing MI curricula to foster children's various intelligences. Finally, awareness programs targeting the Lebanese community at large (parents, educators, government officials) would be beneficial in spreading MI curricula across educational institutions in Lebanon.

CHAPTER FIVE

The Multiple Intelligences Program

Introduction

This chapter is about the Multiple Intelligences program that was developed through the culmination of the results of this study and review of literature. It is a comprehensive program to be implemented in Lebanese schools. The purpose of this program is to foster the eight kinds of intelligences that Gardner presented in his theory. This chapter provides an extensive description of the program and its components. The chapter also provides a guide to preschool teachers for implementing the program.

The MI program described below is divided into four sections: the first section is about MI teaching strategies to be adopted by preschool teachers (see Appendix H). The second section is about the MI curricula, which duplicates the Spectrum Project activities that foster children's multiple intelligences (see Appendix I), as well as a checklist for teachers to determine children's intelligence (see Appendix J). The third section is about the MI classroom environment; that is, teacher-student interactions in the classroom, as well as suggestions to teachers for designing an MI classroom setup. The final section addresses parental involvement in the MI program.

MI Teaching Strategies

According to Chapman (1993), if teachers are aware of instructional strategies that provide a greater variety of approaches using the same materials, students' motivation and performance would improve. Similarly, students must be made aware of each of the intelligences so that they capitalize on their areas of strengths and improve their weaknesses. If students are educated in making their own decisions about their learning, they would focus on nurturing their talents and become independent learners.

Teaching strategies allow students to be decision makers. Opportunities for students to demonstrate their unique intelligences from reading to drawing to leading a group are provided for each student in an MI classroom. For example, in one of the studies about comparing the effectiveness of the two teaching strategies of Multiple Intelligence (MI) and Direct Instruction (DI), the MI teaching strategy consisted of the involvement of students in real and relevant tasks, rather than a focus on content area knowledge. The results showed that the students who were taught in an environment utilizing the MI strategies achieved higher academic math scores, had better behavior, as well as more emotional and social well-being (Douglas et al., 2004).

The Republic of China stresses the importance of teaching with no rules or methods. Each classroom and each student is different and exceptional. Chinese teachers are required to find their own ways of delivering the lessons. Moreover, teachers in Beijing do not use the same method of explaining concepts through words. Rather, they adopt other methods, such as using pictures or music to explain words, sentences, and proverbs, which in turn change the classroom atmosphere into a pleasant and dynamic one. Teachers need to assess students' intellectual strengths and weaknesses; they also need to be creative in the way they teach (Chen, Moran, & Gardner, 2009).

Along the same lines, Haddad (2006) highlighted some of the MI teaching strategies. These strategies focus on developing all eight intelligences through a variety of instructional approaches, activities, and materials. Teachers who will adopt this current MI program for preschoolers will be instructed to use strategies such as "using visual aids" or "keeping soft music playing in the background during class work" (see Appendix H).

MI Preschool Curricula

The literature was reviewed to investigate preschool curricula based on MI that would be applicable in this current program. According to Mettetal et al. (2001), an effective curriculum needs to include different types of activities that tackle the eight different intelligences; thus, not a single student would be left out or disregarded. Rather, students will play a significant role in the classroom; also, they will have boosted confidence, better behavior, and improved performance, which are imperative in raising well-rounded citizens in society. In such a classroom, students are given typically different options to choose from according to their different needs, interests, and strengths. Therefore, incorporating multiple intelligences in the curricula might be hard work for some teachers and parents, but not for the students, since multiple intelligences programs cater to their needs, interests, and strengths. In this current MI program for preschoolers, teachers are required to provide children with intensive experiences in all areas, such as cognitive and fine-motor development, social and self-help skills, and language and gross motor skills. Consequently, students are encouraged to engage in creative free-play, rather than watch television and videos, or play computer games, because these activities do not allow for the use of all five senses.

Another approach emulated in this current program is that of Waldorf (Gage & Berliner, 1998). Like the Waldorf Program, this MI program for preschoolers developed in this project provides children with daily activities that consist of coloring, painting, singing, reciting poems, baking bread, building houses out of boxes, using blocks, sheets, and boards, and dressing up and pretending to be parents, kings, and magicians in drama; all of these activities trigger the child's creativity and artistic side. In addition, the current program will also adopt the philosophy of the Montessori Program (1907) which emphasizes the importance and connection of all living

things. Children learn to read, acquire language and mathematical skills, and they also learn about other cultures, animals, and plants.

Moreover, like the High Scope Program, children in this current program are encouraged to make their own choices about materials and activities; teachers are trained to support this independence and autonomous decision-making.

Furthermore, hands-on activities, such as playing a bus game and telling a story with a storyboard are encouraged (Maluf, 1996). This current program will also incorporate the Spectrum's approach which gives children greater opportunities to fulfill their interests. The Program offers a variety of materials and modes of activities, which help children exhibit higher levels of involvement, interests and persistence (see Appendix I).

Like the Gardner school, in this current MI program developed for preschoolers, opportunities for students to demonstrate their unique intelligences from reading, to drawing, to leading a group are provided for each student. Instruction and learning focus on building skills in all of the intelligences. The arts and the sciences are core components of the curriculum. Furthermore, students are expected to be respectful, cooperative and responsible learners (Vialle, 1997).

The MI theory encourages schools and teachers to look at each student's unique abilities and weaknesses, and design activities for them. Teachers in China are encouraged to be active; they are supposed to give students MI activities every day. Chinese educators focus on group activities; for example, students who excel in music, handcrafts, and physics work together using their knowledge to create musical instruments. The current MI program for preschoolers promotes a student-centered classroom, instead of a teacher-centered classroom. In the past,

Chinese teachers focused mostly on students who had linguistic and logical-mathematical intelligences, as measured by paper-and-pencil formal assessments. At present, a large number of teachers and educators are concentrating on students who excel at other intelligences; for instance, a student who was weak in linguistic intelligence was not able to recite a short poem. However, his teacher was astonished by his strength in the bodily-kinesthetic performance. So she asked the student to play the role of the hero in a drama play performed in class, which gives the student confidence to master linguistic tasks and reach academic progress. In the end, the student was able to recite a well-known essay with one thousand letters.

MI activities that foster children's multiple intelligences are part of the MI curriculum. In this current MI program for preschoolers, teachers are encouraged to apply the following activities to strengthen children's eight kinds of intelligences in a preschool classroom. For example, recreating a favorite insect would foster the naturalist, intrapersonal, and linguistic intelligences in children. Each child is given three pieces of papers to cut out the three main body parts of the insect; the head, the thorax, and the abdomen. The child should arrange the body parts and glue them onto a piece of paper. The teacher gives each child paper or chenille sticks for the six legs. The child may then add details with materials such as buttons, wiggle eyes, and glitter for recreating the insect. Then, children should write a sentence about that insect. Another activity that would strengthen the intrapersonal intelligence in children is the "Who I Am" activity. The child is asked to cut out magazine pictures that represent his/her likes, activities or interests, so others would know him/her better; they would then glue the pictures onto a cardboard (Chen at al., 2009).

A checklist for teachers that helps determine children's intelligences has been developed as well. The checklist helps teachers detect which intelligences the learner uses most often (see Appendix J).

Classroom Environment

The literature reviewed investigated the MI classroom environment. Teacher-student interactions are crucial in monitoring the teachers' fostering of the development of the eight intelligences that Gardner's theory holds; for example, like the Montessori School programs, teachers are called "guides," which means they are facilitators who believe that each child will learn at his or her own pace. The current MI program for preschoolers encourages children to be independent; the teacher's role is to ask children whether they want to try a task, or if they need help, or whether they feel they are not yet ready for doing a specific task (Gage & Berliner, 1998).

According to Gage & Berliner (1998), the MI set up consists of mixed-age classrooms with low student to classroom teacher ratios. Students are expected to be respectful, cooperative and responsible learners. Different modes of integration are arranged, such as rooms that contain games and activities that stimulate each of the eight intelligences in an MI classroom, and choice centers are available for students to work on activities where each of the intelligences are exercised. In this current MI program, children will play in the classroom with toys and materials that develop their imagination, like blocks, water, art materials, clay, puzzles and other objects. They are free to choose the kind of play they want to engage in, and whether they want to work independently or in groups; this helps them learn in their own way and at their own pace. Children's intelligences are not fixed, but rather can be improved by educational opportunities such as an environment rich in stimulating materials and activities.

Furthermore, in this current MI program, preschools will consist of mixed-age classrooms with low student to teacher ratios. Teachers with different expertise, such as specialists in art, music and physical education, are part of this MI program for preschoolers. Teachers cannot intervene directly in the homes of their students, except through programs of parent education and involvement; however, they can accomplish a great deal through what they do at school. The focus of the current MI program is child-centered education. Teachers encourage children's development by offering different opportunities for physical, emotional, cognitive, and social growth. For example, as in the Bank Street Programs, the current MI program is based on the belief that children learn at different paces and in different ways. In accordance with this approach, students are taught through the integration of different disciplines, such as biology concepts could be integrated into an English language classroom. Learning occurs in collaborative or cooperative groups (Gage & Berliner, 1998).

According to Vialle (1997), the MI classroom's materials include resources, games, and centers. Similar to the Gardner School, the current MI program for preschoolers encourages designing classrooms with different centers, such as language center, math center, art center, music center and other centers that foster each of the intelligences. For example, the writing center includes letter cards, alphabet wooden puzzles, and magnetic letters; children try to read the letters and construct words; furthermore, the reading center contains stories to foster children's linguistic intelligence. The math center includes magnetic numbers and cards, and a small white board to practice writing numbers, solving addition and subtraction problems, all activities that foster children's logical-mathematical intelligence. The block center, includes wooden blocks provided for children to build towers and buildings, which fosters their spatial intelligence. The MI classroom is rich in resources; thus in this current MI program, classrooms

include whiteboards with white board markers, wooden puzzles, floor puzzles, lacing materials, wooden blocks, toys, games, plastic animals and insects, stories, play dough, colored crayons, paints and brushes. A tape recorder with a CD player is also available. In this current MI program for preschoolers, the classrooms are vibrantly decorated with beautiful bulletin boards that involve children's work and drawings.

Furthermore, as in the Bank Street Program, the current MI program is based on engaging children in activities that help them develop key abilities in the eight cognitive domains. Teachers will not use the lecture method as in a traditional classroom; rather, children will learn through hands-on experiences and discovery processes.

Parental Involvement

The literature was reviewed to investigate parental involvement in the MI program. Many factors affect children's academic improvement and cognitive abilities; one of these factor is parental involvement. In the study on continuity and discontinuity between home and early education environment, a home-resource teacher provided parents with home activities to strengthen the children's reading and mathematics concepts taught at school. The results showed that this practice was helpful and improved children's academic achievement as well as their cognitive ability (Parks & Smeriglio, 1986). In other words, the results revealed the importance of cooperation between the home and the school (Silvern, 1988).

According to Gage and Berliner (1998), the emotional and verbal responses of mothers, their involvement with the child, and their provision of appropriate play materials are related strongly to the child's psycholinguistic abilities (auditory, visual) and language competence (verbal expression, grammatical closure). Similarly, Lohman (1989) found that high-verbal level boys in comparison to low-verbal level boys had parents who had more positive interaction,

higher academic achievement, and who provided their children with more opportunities for the use and development of language at home. In sum, parental involvement and high quality care seem to have a significant effect on the infant developmental performance, especially in low socio-economic families. The teacher-student-parent bond is one of the most important characteristics in this current MI program for preschoolers. In this current program, parents in the MI classroom are expected to be active participants in their children's education. Teachers maintain frequent communication with parents and actively engage them in the learning activities of their children. Celebrations, student performances, special gatherings and other community event that provide opportunities for students, teachers and parents to build strong communities are encouraged. Parents are welcome in the classroom and are expected to contribute their time and ideas into planning school events to enrich their children's education.

According to experts in China, parents play a main role in fostering children's intelligences; for instance, in one of the schools in China, a girl was labeled by her teacher as having Attention Deficit Hyperactivity Disorder (ADHD). Her father discovered that she was talented in golf, so he took her to a golf course and started to train her to be an expert in the sport. Years later, the girl won many accolades in golf playing at national and international levels. After being interested in developing skills to manage a golf course, she recognized that mathematic and logical thinking were crucial, so she employed private teachers to help her learn these subject matters. This story gives hope to students who are not successful in school exams and assessments. Similarly, in this current MI program for preschoolers, parents need to believe that children who have non-academic intelligences can find success in various other areas (Cheung, 2009).

The Application of MI in Lebanon

The majority of participants who were interviewed for this project agreed that applying MI in Lebanese schools is both possible and beneficial, provided certain conditions are met. First, teachers must be trained in the use of MI instructional strategies; secondly, appropriate and rich materials as well as a stimulating environment must be provided, and lastly, strong communication ties between students, teachers, and parents must be built to form a partnership between these three entities in the school community.

Conclusion

This chapter presented a Multiple Intelligences program for the early childhood cycle that nurtures the eight intelligences identified by Gardner. The program is a guide for preschool teachers or tutors to implement an MI program in their classrooms. It fosters students' eight intelligences: verbal, logical-mathematical, musical, spatial, bodily-kinesthetic, interpersonal, intrapersonal, naturalist and existential. The aim is to provide school teachers and educators with the knowledge and necessary tools to implement an MI program in their classrooms for the purpose of developing and fostering Lebanese children's intelligences, enhancing teaching strategies, and designing stimulating activities and games for an optimal classroom environment and children's development.

References

Agee, M.D., & Crocker, T.D. (2002). Parents' discount rate and the intergenerational transmission of cognitive skills. *Child development, 40*, 73-93.

Bradley, R.H., & Caldwell, B.M. (1980). The relation of home environment, cognitive competence, and IQ among males and females. *Child development, 51*, 1140-1148.

Carroll, J.B. (1978). How shall we study individual differences in cognitive abilities? *Methodological and Theoretical Perspectives Intelligence*, *2*, 87-115.

Chapman, C. (1993). *If the shoe fits…How to develop multiple intelligences in the classroom.* Arlington Heights: Sage Publications.

Chen, J. Q., Moran, S., & Gardner, H. (Eds.). (2009). *Multiple intelligences around the world.* San Francisco: Jossey-Bass.

Chen, J., Krechevsky, M. & Viens, J. (1998). *Building on children's strengths: The experience of Project Spectrum.* New York: Teachers College Press.

Cheung, H.H. (2009). Multiple Intelligences in China: Challenges and Hopes. In J. Chen, S. Moran, & Gardner, H. (Eds.), *Multiple intelligences around the world* (pp. 43-54). San Francisco: Jossey-Bass.

Daniel, S. (1997). A primer on multiple intelligences. *The Journal of Educational Research* , *15*(7), 17-28.

Douglas, O., Burton, K., & Reese-Durham, N. (2004). The effects of the multiple intelligence teaching strategy on the academic achievement of eighth grade math students. *Journal of Instructional Psychology, 35* (2), 182-187.

Elardo, R., Bradley, R., & Caldwell, B.M. (1977). A longitudinal study of the relation of infants' home environments to language development at age three. *Child Development, 48*, 595-603.

Gage, N.L., & Berliner, D.C. (1998). *Educational psychology*. Boston: Houghton Mifflin Company.

Gardner, H. (1999). *Intelligence reframed.* New York: Basic Books.

Gardner, H. (1983). *Frames of mind*. New York: Basic Books.

Gardner, H., Kornhaber, L.M., & Wake, K.W. (1996). *Intelligence: Multiple perspectives*. New York: Harcourt Brace College Publishers.

Guilford, J.P. (1985). *The analysis of intelligence*. New York: McGraw-Hill.

Haddad, L.D. (2006). *The application of multiple intelligences by elementary science teachers in Beirut private schools*. (Unpublished Master's Thesis). American University of Beirut, Beirut, Lebanon.

Hoerr, Thomas. (1998). The naturalist intelligence. Succeeding with multiple intelligences: teaching through the personal intelligences. *New Horizons for Learning*, *60* (3) 20-30.

Lohman, D. F. (1989). Human intelligence*:* An introduction to advances in theory and research. *Review of Educational Research, 59* (4), 333-373.

Maluf, H.G. (1996). *An application of the multiple intelligences theory on Lebanese preschool children* (Unpublished Master's Thesis). American University of Beirut, Beirut, Lebanon.

Margaret, C., & Diane, H. (2003). Improving student motivation through the use of the multiple intelligences. *Review of Solution Strategies, 11*(3), 22-29.

Mettetal, G., Jordan, C., & Harper, S. (2001). Attitudes toward a multiple intelligences

curriculum. *The Journal of Educational Research, 9*(21), 15-122.

Parks, P.L., & Smeriglio, V.L. (1986). Relationships among parenting knowledge, quality of stimulation in the home and infant development. *Family Relations, 35*(3), 411-416.

Siegler, R.S. (1992). The other Alfred Binet. *Developmental Psychology, 28*, 179-19.

Silvern, S.B. (1988). Continuity/discontinuity between home and early childhood education environments. *The Elementary School Journal, 89*(2), 147-159.

Sternberg, R.J (1986). *Intelligence applied: Understanding and increasing your intellectual skills.* San Diego: Harcourt-Brace, Jovanovich.

Vialle, W. (1997). In Australia: Multiple intelligences in multiple settings. *Educational Leadership, 18*(4), 30-38.

Reference of checklist items. *Multiple Intelligences for Adult literacy and Education.* Retrieved from http://literacyworks.org/mi/assessment/find your strengths.html

Teacher Created Resources Inc. (1999). *Multiple intelligences activities.* Teacher Created Materials Inc.

Appendix A

Focus group interview questions

1) What do you know about Howard Gardner's theory of multiple intelligences?
2) Do you think that three to six years old children are capable of developing the eight kinds of intelligences? According to your experience, what specific kind is most frequently developed at this age?
3) Is the school curriculum in your institution based on the development of MI? Do you use specific activities that foster MI and how can you use MI in an ECE classroom?
4) If a program based on MI is developed for preschoolers, what do you think should its components be?
5) Do you think a program based on MI would work in Lebanon/ Lebanese culture? What do you recommend for the program to succeed?

The interviewer is S, the head of preschool department is H, and the ten teachers are TCH1,TCH2,TCH3,TCH4,TCH5,TCH6,TCH7,TCH8,TCH9,TCH10.

S: What do you know about Howard Gardner's theory of multiple intelligences?

H: We had a workshop about multiple intelligences three years ago at school. Umm, students learn in different ways; for example, some are visual learners and others are auditory.

TCH1: Yes, I heard about it at the previous school where I was working in. The preschool coordinator did a workshop for all the teachers about that topic.

TCH2: Yes, I heard about it a little bit since a long time.

S: Do you think that three to six years old children are capable of developing the eight kinds of intelligences? According to your experience, what specific kind is most frequently developed at this age?

H: No, not all the intelligences, children at this age are still too young. I think they mostly develop linguistic and mathematical intelligences; a little bit of spatial, bodily-kinesthetic, and interpersonal intelligences through our daily discussions and everyday situation.

TCH1,TCH2,TCH3,TCH4,TCH5,TCH6.TCH7,TCH8,TCH9,TCH10: They can develop verbal, mathematical; spatial intelligences through the blocks center and interpersonal intelligence through "The show and Tell" activity.

TCH2: They can also develop the naturalist intelligence since young children are small scientists, they like to discover new things. They know a lot about animals and plants. Children are small scientists.

H,TCH1,TCH2,TCH3,TCH4,TCH5,TCH6.TCH7,TCH8,TCH9,TCH10: Children at this age are not able to develop intrapersonal intelligence since they are still too young. They don't know much about themselves, they don't know their strengths and weaknesses yet.

S: According to your experience, what specific kind is most frequently developed at this age?

H,TCH1,TCH2,TCH3,TCH4,TCH5,TCH6.TCH7,TCH8,TCH9,TCH10: At this age, they mostly develop linguistic and logical-mathematical intelligences.

S: Is the school curriculum in your institution based on the development of MI?

H: No, but we use lots of hands-on activities that include all kinds of intelligences.

S: Do you use specific activities that foster MI and how can you use MI in an ECE classroom?

H, TCH1, TCH2,TCH3,TCH4,TCH5,TCH6.TCH7,TCH8,TCH9,TCH10: All the activities we use develop many intelligences. There is an integration of every intelligence through games and activities.

S: If a program based on MI is developed for preschoolers, what do you think should its components be?

H, TCH1,TCH2,TCH3,TCH4,TCH5,TCH6.TCH7,TCH8,TCH9,TCH10: Hands-on activities, games and centers.

S: Do you think a program based on MI would work in Lebanon/ Lebanese culture?

H: Yes, why not. Most of our Lebanese schools that are new and professional have good management, and they are working on all of this. Private schools are able to develop these intelligences in kids, especially schools that follow the American program. Our culture and country is one of the best educated countries.

TCH1,TCH3,TCH4,TCH5,TCH6.TCH7,TCH8,TCH9,TCH10: It depends on the school. Change can happen gradually. Teachers provide everything to their students until they grow up and decide where they fit and what they want; in what they are mostly intelligent.

TCH2: No! Such a program can't be developed in a Lebanese country. Lebanese people care about academia only. They don't care about those intelligences, they don't believe in such a theory. Foreigners are more accepting to such theories. I think that a program based on MI would work very well in German and China since those people are smart and open minded.

S: What do you recommend for the program to succeed?

H: Qualified and trained teachers, and a very rich environment.

TCH1,TCH2,TCH3,TCH4,TCH5,TCH6.TCH7,TCH8,TCH9,TCH10: Games, hands-on activities, and resources.

S: Thank you for your time.

H,TCH1,TCH2,TCH3,TCH4,TCH5,TCH6.TCH7,TCH8,TCH9,TCH10: You're welcome, anytime!

Appendix B

Interview questions for the curriculum consultant

1) What is your current position at the Rainbow School and what was your previous experience in the preschool department?
2) You own a daycare in Beirut; in your opinion at what age should a child join a day care? Do you think that being at a daycare makes a difference in children's cognitive abilities and achievement?
3) Are you familiar with Howard Gardner's theory of multiple intelligences? What is your opinion of this theory?
4) Is your day care divided into different centers? If yes, what centers, and what kinds of intelligences do you focus mostly on?
5) Do you think a program based on multiple intelligences can foster and develop MI in children at this young age?
6) Do you think a program based on MI would work in Lebanon/ Lebanese culture?
7) As a consultant in the Rainbow School, are you satisfied with the current state of the ECE programs in Lebanon?
8) What are the current difficulties you face in ECE program?
9) Are the programs at the Rainbow School and the daycare based on the development of MI?
10) In your opinion, what should be the components of a program based on Multiple Intelligences?

The interviewer is S and the school consultant is SC.

S: What is your current position at the Rainbow School?

SC: Umm, a program advisor for the early childhood department, for the kindergarten department.

S: What was your previous experience in the preschool department?

SC: Setting up with the initiating stage, yaani setting up the kindergarten department, establishing the curriculum, the program, defining if you want; and then actually what I did at Rainbow school is the whole initiation and setting up the kindergarten, and what kind of program, and then training the teachers. And also selecting the head of department that will take over, yaani the coordinator. So once we have now what's her name, Noha is there that this is in the stage that she's going to take over ,bas ana I never ever go and work and stay at the school. You know I'm a consultant, an advisor. My original job is to set up a department yaani from A to Z, the kindergarten and also help in setting up the middle management of the school, yaani setting up the policies, the philosophy of the whole school. This is my consultancy job yaani ana I'm part of development consultant, setting up the curriculum of the school.

S: You own a daycare in Beirut; in your opinion at what age should a child join a day care?

SC: In my opinion today…it is not my opinion, actually all the research are really stressing on early stimulation and actually in the year 2000, in the world day conference of the human resource development, what they said is that we used to think nehna that up to six years it is fine. Today, we are saying that..researchers are saying if the child is not in a stimulation environment then 3 years is already too late for him. So we are really advising the people to…I advise the parents to start take him even if they are not working, at the age of 18 months. My advice to these people is that not to expose children to full day, they might want to put them as part timers

but at least to expose them to a stimulating environment. The babies is a necessity; if the parents are working and they don't have somebody to take care of their child, then, it is more of a necessity, otherwise it is really advisable because of the safety, and health wise you know, and security ; yaani depending on their emotional development, this is the most important.

S: Do you think that being at a day care makes a difference in children's cognitive abilities and achievement?

SC: Well, it does. Yes it does make a big difference, it is not only the day care. You see it is a good day care with a stimulating environment, this is the issue here, this is the indicator. If there is a stimulating environment whether at home, or whether in a day care or anywhere, then, yes, it does make big difference. The stimulation that is coming from the environment will increase the child's critical thinking, his language skills, his ability to solve problems, and that will affect his intelligence. So it doesn't really matter, it matters more of the stimulating environment. You could have a day care, you could put them in a day care that is really bad, actually the environment is not creative, not simulative and you might be putting them at home where there is interaction. As long as you think of the four areas of development that means you are stimulating them socially, physically, emotionally, and cognitively. Yaani for the babies, the most important is the emotional stimulation , yaani security, it means when he cries hadan yeje to look for him, when he needs to change, he needs to feel secure and he needs safety and he needs help. He needs to know if that caregiver she knows that if he is crying she is there to help him.

S: Are you familiar with Howard Gardner's theory of multiple intelligences? What is your opinion of this theory?

SC: Yes I do. I do believe in it very much. I think Howard Gardner mich bas..it's not only whether I believe or not, it does give an opportunity in..how can I say that..if we believe in the

seven intelligences, then we have to plan for the seven. It gives more for a holistic integrated program approach to be adapted, let's put it that way. Nehna we believe that..I believe it is extremely important that we always use the holistically integrated approach in early childhood education, and with Howard Gardner, we have a chance, more opportunity to do that because each person has his own range of development, so it is more on the developmentally appropriate; it is more on the planning, it is more on the brain research and it is true. It is researched, he didn't come up with this theory and decided..all the brain research are supporting the theory a hundred percent.

S: Is your day care divided into different centers? If yes, what centers, and what kinds of intelligences do you focus mostly on?

SC: Yes. Each room is divided into centers, each group is divided into centers. It is based on the developmentally appropriate program, and the creative curriculum. So there is not one over the other, there is not one center that is more important than the other, however, we have let's say with the toddlers, we really stress on the psychometricity, on the physical development, and the language development because these are the mild stones you see. So if you do the developmentally appropriate program, you're going to… look, in the preschool we use more, we go more on the language development, on the problem skill, on the critical thinking, and problem solving skills, math and science, it is discovery because they are preschoolers, on the sensorial . And we start also on the social you see, so it is more on the cognitive, on the language; we can't separate them, that age mild stones.

S: Do you think a program based on multiple intelligences can foster and develop MI in children at this young age?

SC: I think, mich eno… I don't think MI can be fostered and developed in young children. It should!!! Any program for an early age should be actually for developing the appropriate... When we are talking about developmentally appropriate program, it should be based on this, on the holistic integration, it should cater for this. You can develop their intelligences since zero.

S: Do you think a program based on MI would work in Lebanon/ Lebanese culture?

CC: It is not for one culture! MI is universal. The holistic integrated approach is universal, how human beings develop, it is all universal. It all depends though on how environment is simulated, how rich is the environment, if there are people that are providing stories, reading them stories, is the child exposed to cognitive activities and experiences. It doesn't have to be in a day care, the child could be at home and exposed to a lot of activities, enriching activities that promote you kno.. and develop intelligence. The thing that we have to understand is that it is not formal schooling! So MI is a universal approach.

S: As a consultant in the Rainbow School, are you satisfied with the current state of the ECE programs in Lebanon?

SC: Well, recently I've done a mapping of the early childhood education program in all Lebanon, but I think we are still more into the formal schooling. At Rainbow school, I'm satisfied because we are starting I think…the teachers and the staff that are working with the children are more now moving towards holistic integrated approach, developmentally appropriate, continuous evaluation, and more understanding on assessment. You know they are more aware of how children learn, on research base and inquiry base approaches. However, in Lebanon we are still suffering from a lack of actual understanding of what early childhood education should be. It is more on the formal schooling rather than on the developmentally appropriate approach.

S: What are the current difficulties you face in ECE program?

SC: Lack of early childhood educators, qualified early childhood educators. Lack of premises, not enough hayda..not enough preschool, yaani environmental hayda.. and lack of proper formation at the university level. Lack of resources also in early childhood education and also lack of understanding on the national level of the importance, the impact of a good early childhood program.

S: Are the programs at the Rainbow School and the daycare based on the development of MI?

SC: Yes, yes, yes. They are based on the developmentally appropriate program and the creative curriculum. When we talk about these, we talk about MI.

S: In your opinion, what should be the components of a program based on Multiple Intelligences?

SC: The components should be actually, a nurturing and rich environment, stimulating yaani. Qualified early childhood educators, variety of resources, developmentally appropriate program, and a strong partnership with parents in community.

S: Thank you very much.

SC: You're welcome! Let's have lunch together at Paul.

S: I wish I can, anyway thx a lot for the invitation and sahten salaf.

SC: Thank you my dear.

S: Bye.

SC: Bye bye, see you.

Appendix C

Interview questions for the school coordinator

1) What is your current position at the Golden School?
2) What is your experience in early childhood education?
3) Are you familiar with Howard Gardner's multiple intelligences theory? What is your opinion of this theory?
4) Is the program at the Golden School based on MI? Do you use specific activities that foster MI?
5) You had a previous experience with Project Zero in August, 2005. Can you describe that experience?
6) In your own words, can you define Project Zero? And what does this project aim at?
7) Did you give any workshop about Project Zero to Golden school's teachers? If yes, please elaborate. How was the workshop received by the teacher?
8) What are the current difficulties you face in ECE?
9) Do you believe a program based on MI works in Lebanon in general? And at the Golden school in particular?
10) What should a program based on project zero include? How can you use MI in an ECE classroom?
11) Do you think children at this early age are capable of developing different kinds of intelligences? What specific kind is most frequently developed at this age?

The interviewer is S and the expert in early childhood is X

S: What is your current position at the Golden School?

X: My current position is a first grade teacher since four years.

S: What is your experience in early childhood education?

X: Twenty five years in ECE. I was the principal of ECE for many years, I taught KG1 class and now I teach grade one, I consider grade one part of early childhood education. Yaani you can say I've been 27 years in the field.

S: Are you familiar with Howard Gardner's multiple intelligences theory? What is your opinion of this theory?

X: Yes I'm familiar with Gardner's theory. I think it makes a lot of sense. It helps the teacher see the children as individuals, not as groups. The teacher looks at strengths and builds from these strengths.

S: Is the program at the Golden School based on MI? Do you use specific activities that foster MI?

X: No, the program at the Golden school is not really based on MI. I will talk about myself. I don't go about identifying children's intelligences at the beginning of the year, but in my teaching I use MI; but when I get to know children, I check which intelligences they are mostly stronger at and I strengthen these intelligences. Because I'm a homeroom teacher, I can integrate all the intelligences language, music, movement, we play with different letters to make words.

S: You had a previous experience with Project Zero in August, 2005. Can you describe that experience?

X: True. It was overwhelming. Project Zero is teaching through arts, making learning visible. I went to Boston and I was interested in documenting children's thinking, making learning possible. Project Zero is very big. I didn't grasp… they emphasized a lot on teaching through the arts and I m not an art teacher. I was interested in how to make learning visual, how children's thinking evolve. I was introduced to the faculty Regio Emilia where schools are very good in documenting children. The teacher sits with kids, see how they ask questions and she plan accordingly. You don't know where the kids will take you. I don't think I've learned a lot about project zero. It was a big experience. It's big, you need to get deeper as you go about it.

S: In your own words, can you define Project Zero? And what does this project aim at?

X: The aim of Project Zero is to promote learning that is reflective where the learner is at the center of decision taking, instead of the teacher. Children are critical thinkers, reflective of their thoughts using MI. Project Zero started to focus on arts, teaching through the arts, then developing MI. Project Zero is child-centered education where the learner is at the center of everything.

S: Did you give any workshop about Project Zero to Golden school's teachers? If yes, please elaborate. How was the workshop received by the teacher?

X: Yes, only one. It is the hardest workshop I gave. I had a lot of questions myself. I don't know how the teachers took it. It was not an easy workshop to give. Usually, u go to a workshop, you know exactly what to do; when I came back from Boston I needed more time, I just took bits and pieces.

S: What are the current difficulties you face in ECE?

X: I don't know because I've been away from ECE since four years. It's a challenge not difficulty because you need to change the way you think; the documentation process to train

yourself to see with eyes. In early childhood education there is more interest in how kids evolve. Now, the Golden school is following Regio Emilia.

S: Do you believe a program based on MI works in Lebanon in general? And at the Golden school in particular?

X: Yes it works. Teachers are accepting it. The theory makes a lot of sense because we are human beings and we are different. For instance, I teach fifteen boys and seven girls, so my teaching needs to be different and I need to look into their intelligences. It is not hard, it is doable, but it needs a lot of training. I do believe in it, it is research-based.

S: What should a program based on project zero include?

X: It needs a lot of documentation of the process of learning, not the product. Project Zero started with a big emphasis on Arts, learning through the arts. It needs a lot of training, talking among the teachers how to do things; usually, teachers are isolated, they all work alone, they must document together with an integration of all the disciplines.

S: How can you use MI in an ECE classroom?

X: Through the learning centers, a project-based learning is another one, and hands-on activities; hands-on about real life situations.

S: Do you think children at this early age are capable of developing different kinds of intelligences? What specific kind is most frequently developed at this age?

X: Yes, more than one intelligence, they all work together: linguistic, math, kinesthetic. You can’t say I will develop one intelligence. Teachers play a role in following up and developing the different intelligences in kids. Usually, the teacher teaches according to her intelligence, it is your style of teaching. If you sit behind your desk, you’re not helping kids developing all kinds of intelligences, only academic. Teachers get sacred from changes, they are not very enthusiastic.

It takes more time, work, and training. It’s not easy. You should bring the awareness first, then do a training .When the administration imposes something on teachers, they feel threatened, like anyone who is learning something new. Everything should be implemented gradually.

S: Thank you very much.

X: Walaw, you’re welcome Sahar, anytime.

Appendix D

Interview questions for the preschool director

1) In June 1996, your MA Thesis at the American University of Beirut was about MI and the application of the Spectrum Project in a Lebanese Kindergarten. Can you describe it briefly? What inspired you to choose such a topic and what was the major purpose of the study?
2) In your own words, can you define the Spectrum Project?
3) Going back to the study you conducted a few years ago, what were the study's results and what were the study's limitations?
4) In your opinion, were the teachers for or against the application of a specific program that fosters children's multiple intelligences?
5) Do you recommend additional studies and research on this topic in Lebanon? If yes, what should be the focus of these studies?
6) Do you encourage and recommend the application of the Spectrum Project in a Lebanese culture?
7) Do you currently apply a program based on MI at your institution? If yes, what are the components of the MI program?
8) Ideally, what should a program based on MI include?

The interviewer is S and the preschool director is D.

S: In June 1996, your MA Thesis at the American University of Beirut was about MI and the application of the Spectrum Project in a Lebanese Kindergarten. Can you describe it briefly?

D: Okay, the spectrum project was there and the idea was to apply it in Lebanon. So I decided to take it and wrote a petition to the silver school because this is where I work and finally we decided to apply it. The experimental group was Beirut campus and the control group was outside Beirut. The assumption is that both campuses have the same curriculum, so if we are modifying one then will we see the difference between the two campuses and actually this is what happened. And the spectrum project is about being able to show whether a preschool child has a profile in those intelligences and whether those intelligences can be developed. Those were my two big questions. And actually at the end of the study it was very obvious, it was obvious that the profile could be found. It was obvious that students have those intelligences but the effect was not that much. Very briefly, there was not much effect.

S: What inspired you to choose such a topic and what was the major purpose of the study?

D: What inspired me is, I mean then, I was a teacher in the preschool and you know at the preschool, observation is a big part of assessment. So whenever you observe students you really see differences, you see different styles, you see those learning styles. So I said how can we get to know kids more? So I actually started looking into learning styles, then reading MI, and at that time, it was the peak of Multiple Intelligences, it was booming in 1996.

S: In your own words, can you define the Spectrum Project?

D: As I told you, it is a tool that has games, they are all games. Through games and activities, that tackle or can give you the profile in term of intelligences of every child.

S: Going back to the study you conducted a few years ago, what were the study's results and what were the study's limitations?

D: Common, you know the study's results; you told me at the very beginning of the interview that u read my MA project, you have a copy (laughing).

S: That's true I read your project study but I would like to hear more from you. In your opinion, were the teachers for or against the application of a specific program that fosters children's multiple intelligences?

D: No, teachers were well prepared but surprised. MI was new. We discussed every game, how to play it with the kids but the whole mentality was new. The teachers were not against the application of MI; on the contrary, they were very enthusiastic about it.

S: Do you recommend additional studies and research on this topic in Lebanon? If yes, what should be the focus of these studies?

D: Studies about this topic is very scarce in Lebanon, but at the same time the big question is: what do you do next? Yaani the spectrum project is for preschool and there are other programs for elementary, middle and secondary schools. So you either say I want to have an MI because looking into those intelligences and not doing anything about them is not what you are looking for. If I'm looking into those intelligences, it means I want to do something about them; it means I want to modify my curriculum, my engagement, so that I develop those intelligences in those kids. This was why we stopped it because we said now okay, we know the profile and okay we can do something about it, but if the elementary school is not there, so why are we doing that? A school deciding to go all way into MI is a possibility, but a school deciding to have a free school of MI is useless and stopping. The whole idea of MI shown and developed is the idea of differentiation. Differentiation in 1996 was very far from

our understanding. Now, we are very close to it. We are not saying we are an MI school, definitely not, but because we are differentiating; we are looking into those intelligences and sometimes we are using them to differentiate.

S: Do you encourage and recommend the application of the Spectrum Project in a Lebanese culture?

D: It did work definitely. When I applied it, it did work. A couple of things might be cultural biased but they can be modified. It did work in a Lebanese culture. I don't think it has anything to do in terms of cultural biased. It is not that it won't work in a Lebanese culture, but it will work somewhere else. No. This program is specifically concerned about looking into those intelligences. As I said, let's say one of the mathematical games was about watching people going into a bus; and then two of them let's say going down and then one going up again, and you're, you're…Actually what you are doing is adding and subtracting how many are there in the bus. Okay, you might tell me but our kids don't use the bus. We don't have public transport that is developed as in the States let's say. I say okay, you can put them in a car, it's not a big deal. You can always modify if you can see that this is not culturally correct.

S: Do you think the Spectrum Project works in private schools only?

D: It really depends. I mean there is nothing magical about the spectrum project; on the contrary, it is a very friendly project, it is really friendly, it is very age appropriate.

S: Do you currently apply a program based on MI at your institution? If yes, what are the components of the MI program?

D: No, but now we do, now there is... As I told you, now we have people understanding of differentiation. We are looking into those intelligences, not in a systematic way, but we are using them to differentiate our instruction.

S: Ideally, what should a program based on MI include?

D: As I told you, a whole MI school where those intelligences are going to be developed. All of them; let's say if I have a child who is artistically more developed, I m going to nurture this, I'm going to add to it, I'm going to be able to provide everything he needs to develop..games, activities… and the higher it goes, the more difficult it becomes.

S: Thank you for your time.

D: Ya ahla w sahla.

Appendix E

Interview questions for the university professor

1) What is your specialty, and what is your previous and current experience in Early Childhood Education?

2) Some researchers claim that early programs improve both IQ and achievement, what do you think?

3) Are you familiar with Gardner's theory of MI? How do you think it can be applied with young children?

4) Do you think activities and programs based on MI can have positive effects on children's cognitive abilities? If yes, discuss some of these effects.

5) Based on your experience, what specific intelligence can children at this young age develop?

6) Do you think a program based on multiple intelligences can foster and develop MI in children at this young age? Do you think such a program would work in Lebanese culture?

7) Do hands-on activities have a positive effect on young children's cognitive abilities and IQ? What kind of activities do you recommend?

8) Based on your experience with this specific age group (3-6), how can the eight kinds of intelligences be identified and fostered in children?

The interviewer is S and the university professor is UP.

S: What is your specialty, and what is your previous and current experience in Early Childhood Education?

UP: My area of expertise is looking at mother-child attachment relationships, ultimately looking at maternal sensitivity, child attachment security, maternal and child sensitivity and attachment representations child social competence in preschool. My academic background is in Human Development and Family Studies and Early Child Development. Currently, I am teaching child psychology, early child education methods and material and methods course – 8 years in the field of early child development including also early childhood education

S: Some researchers claim that early programs improve both IQ and achievement, what do you think?

UP: I think that early programs do improve IQ and achievement but I think there is also the flip side that certain programs do not have this effect – also, when talking about early programs improving IQ and achievement, what population is being worked with that gets at these outcomes? There are also studies that show that there are differing results based on the actual program, the effectiveness of the intervention/program and the population that is being worked with. Context specificity is certainly a very important factor to take into account when implementing said programs – they can work with some, and not so with others

S: Are you familiar with Gardner's theory of MI? How do you think it can be applied with young children?

UP: I am familiar with the multiple intelligence –working with kids means working with this little a human being holistically – there is not one more important area of development than another –they are all as important – you ask in question #6 if such a program would work in a

Lebanese culture – ofcourse it can – the application of MI and how it is implemented is crucial and with research, and proper understanding of child development and a good understanding of the context in which we are working, this can certainly be applied (children's abilities to understand is IMMENSE – adults underestimate their abilities because they are young – when you don't foster children's growth and development based on this mentality that they don't get it, then surely anything you apply, and the way you apply is not going to produce the positive outcomes)

The question however is, do people understand child development and what is best for them and do they understand what age appropriate instruction should be at this age? The societal and governmental demands are very intense for the teachers in the early years programs – as it is, there is no national strategy or framework about early childhood development which causes a lot of disparities across different regions within the country within schools, neighborhoods, programs that are actually being implemented and so forth – so more than actually being able to implement MI in children at young age, it is getting across to those teachers to teach them how to teach – teaching is successful when you know the needs of the kids. May sound very simple and certainly just common sense, but it is amazing to see what actually goes on out there – poor care giving, poor teaching, poor instructions due to lack of knowledge about children's development.

S: Do you think activities and programs based on MI can have positive effects on children's cognitive abilities? If yes, discuss some of these effects.

S: Based on your experience, what specific intelligence can children at this young age develop?

UP: Questions 4 and 5 will be answered together here because I think they are both related - Based on what I have already mentioned above, it is absolutely clear that programs based on MI can have positive effects on children's cognitive abilities – since kids have an incredible ability

to learn, all areas of development, all intelligences develop during this young age – they are learning numbers, relations, music, physical development and so forth.

S: Do you think a program based on multiple intelligences can foster and develop MI in children at this young age? Do you think such a program would work in Lebanese culture?

UP: As already mentioned, programs invariably consist of some sort of MI aspect to it – however, the main issue is how well rounded the programs are to foster and develop MI in children during the early years – anything that is well implemented, based again, on knowledge about child development should work knowing the context and culture you are working in. Programs cannot be replicated without considering the population within a particular context that you are working in, some programs work better in certain areas and populations than others, so it's really a matter of knowing how to implement the MI driven program.

S: Do hands-on activities have a positive effect on young children's cognitive abilities and IQ? What kind of activities do you recommend?

UP: Of course hands-on activities have positive effects on young children's cognitive abilities – it is somewhat hard to list all the activities and what I would recommend, but the more the projects/activities you have that are inquiry based, the more you will witness kids' progress – sometimes we have a lot of resources to provide for the kids, be it toys, manipulatives, area of the classroom to move, arts and crafts, building blocks, books, outdoor activities etc…but it is not enough to have those resources available – it is how you as a teacher provide the opportunities for these kids to maximize their skills in all aspects of development, through their involvement through observations, and ultimately through a child-centered approach. Kids know, they have the ability to know even more – whatever and however much you give them is what and how much they are going to learn.

S: Based on your experience with this specific age group (3-6), how can the eight kinds of intelligences be identified and fostered in children?

UP: By observing your kids, one can notice child's intelligence – when a teacher is focused on only one aspect of a child's development, they may very neglect another part of a child's area of expertise fostering only one aspect that the teacher considers important – for example knowing how to count…Counting, knowing numbers, identifying numbers, colours, shapes, building blocks, interacting with peers, behaviors in the classroom, conversations with children, interactions one on one or within group(s), manipulating, exploring and inquiring about the environment comes in all forms, shapes and sizes– it's really hard to pinpoint just *how* intelligences can be identified – but when you provide a child with the opportunities both with resources and the way you as a teacher make use of those resources, and you observe and keep track of what the kid is doing, then you are fostering intelligence in children because when you observe and you know the needs of that child, then you will adapt the environment, whatever that may be, to meet the child's needs.

Appendix F

Observation of the Preschool Department (Nursery, KG1, KG2)

Data were collected through classroom observations. Random student observations in early childhood classrooms took place (one section of each level: Nursery, KG1, and KG2). Each section was observed for three sessions; each session extended for fifty minutes during a two-week period. Discrete notes were taken occasionally during the observations, while detailed note taking was taken immediately after the observation sessions. Since the observation took place in the same school, and in the same early childhood department, I realized that the classrooms and the style of teaching are almost the same in the three sections.

Seven different centers are present in nursery, KG1, and KG2 classes: writing center, reading center, math center, science center, art center, computer center, and block center. The writing center includes letter cards, alphabet wooden puzzles, and magnetic letters that children play with during play time; they try to read the letters and construct words. The reading center is a small library that contains stories that are shelved. English, French, and Arabic stories are available. Children pretend to read (nursery, KG1), read stories (KG2), scan through the pages, and try to recognize letters during transition times or during quiet reading time. The math center includes magnetic numbers and cards, and a small white board to practice writing numbers, addition, and subtraction (KG1, KG2). The science center includes pictures about the current theme such as four different seasons, insects, pictures of plants, and rubber animals that attract children the most. The Art center contains coloring crayons, paint, scissors, brushes, and A4 papers for children to draw during play time or guided play time. The art center is decorated with well known artists' drawings. The computer center contains a computer, and a very few entertaining games. The block center is the children's most favorite center. Wooden blocks are provided for children; they build towers and buildings most of the times during play time. Nursery, KG1 and KG 2 classrooms' resources include a whiteboard with white board markers,

wooden puzzles, floor puzzles, lacing stuff, wooden blocks, toys, games, plastic animals and insects, stories, play dough, colored crayons, paint and brushes. A tape recorder with a CD player is also available in each classroom. The classrooms are well decorated with beautiful bulletin boards that involve children's work and drawings.

After having observed the three different sections, one conclusion can be reached about teacher-student interactions. Homeroom teachers focus mostly on children's verbal and mathematical development. They emphasize the English language, letters, phonetics, words as well as on numbers, colors, shapes, and sizes. Each classroom has a board that is entitled 'character education'; according to the teachers, students learn a new value every new month through discussions such as respect, honesty, and cooperation. Nursery, KG1, and KG2 homeroom teachers teach children body movements during circle time every once in a while; for example, they play "head, shoulders, knees and toes", where the children have to move their bodies, and put their hands on their different body parts. Moreover, teachers emphasize children's respect for one another; for example, if two children fight or say bad words to each other, the teacher interferes immediately and sits with the children in order for them to apologize, and know what they did wrong.

The same Arabic teacher teaches nursery, KG1, and KG2 classes. She mostly focuses on children's learning of the Arabic language. She emphasizes most the oral language, writing of letters and words, as well as Arabic songs. The Arabic teacher also stresses on math concepts such as numbers and counting, colors, shapes, and sizes.

The same French teacher teaches nursery, KG1, and KG2 classes. She mostly focuses on teaching children French language. She emphasizes most oral language, writing of letters and

words, as well as the practice of French songs. The French teacher also stresses on math concepts such as counting, numbers, colors, shapes and sizes.

The same Music teacher visits the three different sections (nursery, KG1, and KG2) once per week for forty minutes. She plays the guitar and sings the same songs to the three classrooms in English, Arabic, and French. Many children do not participate. The same songs are being taught again and again. The music teacher changes songs according to occasions such as Christmas, mother's day, Easter, and other occasions. No musical instruments are being shown to or practiced by children. Moreover, the music teacher has no replacing assistant in case she is absent, so children miss the music session when she is absent. The teacher rarely asks the children to stand up and move or dance; they are always sitting in circle on the carpet.

Finally, children have the same physical education teacher who is at the same time the KG2 homeroom teacher. Nursery, KG1, and KG2 have a PE session only once per week, for forty minutes only. Again, if the teacher is absent, nobody is available to replace her, thus children miss the PE session for a whole week. General and basic skills or exercises are given to children like running, catching/throwing the ball, counting and jumping, and similar basic exercises. There is no specific area for the PE sessions. The teacher takes the children out to a medium space just outside the preschool department for them to have some space in which to run. Children stay in class during rainy days, since there is no indoor playground, thus the chance of running and jumping is very limited.

In relation to multiple intelligences, it can be concluded that the linguistic and logical-mathematical intelligences are the two mostly nurtured intelligences in nursery, KG1, and KG2. Teachers stress most on the development of children's skills in the English, Arabic and French languages through oral communication during circle time, and through the songs and resources

found in centers. For instance, the writing center is rich with letter cards and pictures; the reading center includes stories that are rich in printed letters and words; the activities and sheets given to children develop their writing skills. Moreover, letter/word games like 'Bingo' during circle time also foster children's linguistic intelligence. In addition to verbal intelligence, teachers foster children's development of math through sheets and activities given during activity time (for instance, counting, writing numbers, as well as addition and subtraction activities). The resources that are provided in centers like number cards also strengthen children's logical-mathematical intelligence.

Spatial intelligence is quite enhanced through the blocks center. Children play with blocks everyday during play time. They appear enthusiastic about constructing buildings and towers; therefore, children's imagination and spatial intelligence are relatively developed. Interpersonal intelligence is moderately stressed. Nursery, KG1, and KG2 teachers discuss with children a new value every month such as respect, honesty, and cooperation. They emphasize children's respect for one another; for example, if two children fight or say bad words to each other, the teacher interferes immediately and sits with the children in order for them to apologize, and know what they did wrong. Teachers encourage children to play and work cooperatively, hence, developing children's interpersonal intelligence. Naturalist intelligence is somewhat developed. According to the teachers, children at this young age are considered to be small scientists who like to discover new things. Nursery, KG1, and KG2 children are excited about discovering and recognizing plants, and animals through the science center. For instance, children are able to feel different kinds of leaves, plants, and pets like fish and turtles, thus developing children's naturalist intelligence.

On the other hand, Musical intelligence is not actually developed in children. The music teacher visits children only once per week, which is not enough. In addition, the music teacher is absent most of the times, without a substitute teacher. Playing only guitar to children without providing them with musical instruments is not enough to extend children's musical intelligence. Moreover, Bodily-kinesthetic intelligence is not developed as well, due to many reasons. The English teacher rarely plays body movement games with the children. Moreover, the PE teacher is not truly encouraging children to move. Children have only one session of physical education per week, and the teacher is absent for much of the time, without having a substitute teacher. Furthermore, the PE teacher is not an expert in Physical education; she is at the same time the KG2 homeroom teacher. There is a lack in resources; children only have the chance to play with hoops and balls. General and basic exercises like running and jumping are given to children, and the small space that is provided for PE does not help children in strengthening their bodily intelligence. The fact that the children need to stay in class during rainy days does not help children move their bodies, hence discouraging children's development of bodily-kinesthetic intelligence.

According to the teachers, Intrapersonal intelligence can't really be developed at this young age; children can barely express their likes and dislikes. The existentialist intelligence is almost absent as well. Children at this young age don't have yet a high interest in the meaning of life.

In sum, the two kinds of intelligences that are mostly nurtured by the observed teachers are the linguistic and the logical-mathematical intelligences, whereas all the other intelligences are not nurtured as well.

Appendix G

Observation of the Day Care

Children's observation also took place in the day care on April 6th 2010, after interviewing the Rainbow's school consultant, who is at the same time the owner of the day care. The daycare is located in one of the old Lebanese buildings. It is on the ground floor. The atmosphere in the day care is nice and warm. There is soft music in the background, which promotes a relaxing and quiet environment though the children's noise is quite loud and all over the place. The daycare includes children of forty days to three year old. The day care is divided into different sections or rooms. The rooms are of medium and small sizes, not very spacious.

The first section is called 'baby section' and it includes newborn babies of forty days and above. The room is equipped with seven separated baby beds, bed sheets, covers and all what babies' needs from diapers, towels, wet wipes, and a sink. Each baby has his/her own bag with personal items in terms of change, and food. Three caregivers take care of the babies; they feed the babies with milk bottles, make them sleep, sing songs to them, and play with them. This section has few materials; it only includes rattles and few rocking. The emotional stimulation, security, and safety are stressed the most in this section.

The second section is called 'senior section' and it includes babies that start crawling until they start walking. One caregiver takes care of these children since they are only a few. Like the baby section, this room has few materials and resources as rattles and toys. The empty area is provided for the children to crawl in order to start practicing their leg muscles, standing up, and walking. Verbal stimulation is emphasized; Arabic is the language used the most. The third section is called 'toddlers section' and is similar to the second section. It includes children who started walking until they reach preschool. This section includes toys, games and stuffed animals. Verbal stimulation is emphasized; Arabic is also the language used the most.

The fourth section is ‘the French preschool’. Children in this section will enroll in a regular school the year after. The children speak French and learn everything in French as per their parents’ choice. Two teachers teach the children in the French classroom; the use of Arabic is totally forbidden. The fifth section is ‘the English preschool’. Like the French preschool, children are going to school next year, they speak English and learn everything in English as per their parents’ preferences; Arabic is avoided. Children in this section have two English teachers as well. The two preschool classrooms are well equipped and much richer in comparison to the smaller sections; a whiteboard with markers, puzzles, toys, stories, stuffed animals and building blocks are available in these two sections. Teachers in these sections emphasize most the development of verbal language and math. They stick either to French or English, and speak the same language all the time with children; they don’t use a single Arabic word. Arabic is not allowed at this stage. Teachers encourage the children to express themselves orally using one of the two languages; they also focus on the development of math concepts; they mostly stress on counting, colors, shapes and sizes. They also teach the children body movements during circle time.

An outdoor playground of a medium size is available. Safe equipments are provided to the children; plastic swings, sea saws, slides, and bicycles, are all in good conditions. All children go once per day to the playground, but at different times.

Finally, children go to the daycare from Monday to Friday, from 7.30 a.m to 3.30 p.m, except for some children whose parents work until late afternoon, and who stay at the day care until 5p.m. All the children have lunch in a specific area in the day care, since it offers daily hot meals varied with healthy Lebanese food. Lunch is served at 1p.m, followed by nap time during

which all children rest or sleep. The total number of children in the day care is between 40 and 45.

The day care doesn't really follow MI contrary to what the owner of the day care claimed. The Linguistic and the Logical-Mathematical intelligences are the two intelligences that are mostly developed in the daycare, especially in the French and English preschool sections. These two intelligences are fostered through oral activities in circle time (letter and number cards, shapes, stories, and pictures). The two preschool sections are richer in resources and materials in comparison to the smaller sections which promote the development of linguistic and mathematical intelligences.

The musical intelligence is not encouraged and enhanced. Children don't have a music teacher; they just sing a few songs with their teachers. They have no access to musical instruments. They only hear music in the background, which is not enough in developing musical intelligence. Also the Bodily-Kinesthetic intelligence is not emphasized. Children don't have physical education; they just do some body movements with the teachers in circle time. However, children in small sections ('senior' and 'toddlers') practice their muscles, walk, and run with the teacher's help. The outdoor playground allows children to move their body parts through slides, bicycles, sea saws, and plastic swings, all of which help children develop their body-kinesthetic intelligence. Nevertheless, this is not enough, especially that they go to the playground only once per day and do not have the chance to play outside during rainy days.

On the other hand, Spatial, Interpersonal, Intrapersonal, Naturalist, and Existential intelligences are not fostered due to children's young age. For instance, children in the 'baby section' are not able to develop Interpersonal intelligence yet. The emotional stimulation, security and safety are the most stressed.

In sum, the two intelligences that are mostly fostered in the day care are the Linguistic and the Logical-mathematical intelligences; these two intelligences are fostered in the two preschool sections only, where children are almost three years old and are going to school in the following year. Other intelligences like Musical and Bodily-Kinesthetic intelligences are not really developed due to the lack of specialized teachers in the field of music and physical education. Spatial, Interpersonal, Intrapersonal, Naturalist, and Existential intelligences are not emphasized due to the children's young age-that is, below three years old.

Appendix H

MI Teaching Strategies

Teaching Strategies

(based on Haddad, 2006)

1. Designing the classroom's bulletin boards with students
2. Taking the students outdoors to observe and explore natural phenomena whenever applicable
3. Asking students to share personal experiences related to the topic
4. Using visual aids (e.g. photographs).
5. Using storytelling
6. Asking students to simulate sounds of objects and living creatures using own voice, a musical instrument, or other instruments
7. Emphasizing the tactile sense and helping students learn by doing so whenever applicable
8. Modeling thinking aloud during problem thinking and encouraging students to do the same
9. Allowing students to move and play with class resources during free play time
10. Asking students to conduct interviews
11. Running discussions with students, especially with regard to their preferences
12. Using a musical instrument to demonstrate sound and encouraging students to do the same
13. Emphasizing the importance of protecting the environment through modeling love and care to animals and keeping the environment clean and green
14. Modeling awareness of one's own strengths and weaknesses and encouraging students to do the same
15. Emphasizing symmetry or the search for patterns

16. Using songs to explain concepts
17. Keeping soft music playing in the background during class work
18. Summarizing the lesson and students' ideas and asking them to do the same
19. Encouraging students to express their thoughts, feelings, opinions and desires clearly and effectively in relation to the topic discussed through student-teacher and student-student interactions
20. Asking students to classify and categorize natural objects and living things
21. Encouraging cooperation rather than competition through asking students to work in pairs (or groups) during lessons and/or through asking them to make group projects at home
22. Taking students on field trips
23. Modeling mental imagery through describing images aloud in order to encourage students to visualize
24. Drawing students' attention to shapes, sizes and forms
25. Asking students to compose songs related to the topic
26. Using videos or computer simulations
27. Asking students to make individual reports with pictures about their outings during the week end ,which they will orally present
28. Using role-play
29. Bringing natural objects (living and nonliving) for students to observe in the classroom
30. Using 3-dimensional models
31. Allowing students to move and act things out

32. Modeling awareness of one's own feelings and trust in oneself and encouraging students to behave likewise
33. Asking students to conduct science experiments (e.g. flowers/food coloring)

Appendix I

Description of Spectrum Activities

Description of Spectrum Activities

(based on Maluf, 1996)

Language Activity

Storyboard activity

The storyboard activity is designed to provide a concrete but open-ended framework in which a child can create stories. Children are asked to tell a story using a storyboard equipped with an ambiguous-looking landscape, foliage, dwellings, and assorted figures, creatures, and props. The activity measures a range of language skills including complexity of vocabulary and sentence structure, use of narrative voice and dialogue, thematic coherence, and expressiveness (Maluf, 1996). This activity fosters the child's linguistic intelligence.

Mathematics Activities

Dinosaur game

The dinosaur game is designed to measure the child's understanding of number concepts, counting skills, ability to stick to rules, and use of strategy. The game consists of a game board with a picture of a large dinosaur, wooden dice, and small plastic dinosaurs for game pieces. The aim of the game is for the small dinosaurs to escape from the hungry mouth of the large dinosaur. Two players take turns throwing dice to determine the direction and the number of spaces they each can move. At the end of the game, the child is permitted to arrange the dice to his/her own advantage, revealing how well he/she understands rules. This activity fosters the child's logical-mathematical and the interpersonal intelligences.

Bus game

The purpose of the bus game is to assess the child's ability to create a useful notation system, perform mental calculations, and organize number information with one or more variables. The bus game consists of a cardboard bus, a game board with four bus stops, figures

that get on and off the bus, and two sets of colored chips. In the game, the child is asked to keep track of how many people are riding the bus as it makes a number of stops. Each trip becomes increasingly challenging. For some trips the child uses the colored chips to keep track of the passengers, while the other trips he/he is asked to keep count in his/her head (Maluf, 1996). The teacher can use a real school bus so the activity sounds as a real life situation, and students feel more excited. The bus game activity fosters the child's logical-mathematical intelligences.

Music Activities

Singing activity

The singing activity is designed to assess the child's ability to maintain accurate pitch and rhythm while singing, and his/her ability to recall a song's musical properties. During the activity, the child is asked to sing his/her favorite song and a popular children's song. The child is also asked to recall a song taught to the class preceding the activity.

Music perception activity

The purpose of the music perception activity is to assess the child's ability to discriminate pitch in different situations. In the first part of the activity, the first four phrases of three familiar tunes are played on a tape recorder and the child is asked to identify the tunes as soon as he/she recognizes them. During the next part of the task, the child listens to different versions of a familiar tune, and is asked to identify which are correct and which are incorrect. In the last components of the activity, the child plays two pitch-matching games using Montessori bells, which look identical but produce different tones (Maluf, 1996). These two Music activities foster the child's musical intelligences.

Visual Arts Activities

Art portfolios

Throughout the school year, each child's artwork is collected in a portfolio. These portfolios include drawings, paintings, collages, and three-dimensional pieces. Twice a year, teachers can review and assess the contents according to a certain criteria that include the child's use of lines and shapes, color, space, detail, and representation and design. The child's preferred medium will also be noted for future reference.

Structured activities

In addition to the portfolios, four structured art activities are introduced to the class each year and assessed on a criterion similar to those used in the portfolio assessment. Children are asked to complete three drawings and one three-dimensional task. These activities give every child in the group the chance to respond to the same assignment and interact with the same materials (Maluf, 1996). These two activities foster children's spatial intelligence.

Movement Activities

Creative movements

Children participate in creative movement sessions every two weeks throughout the school year. This ongoing curriculum focuses on children's abilities in five areas of dance and creative movement: sensitivity to rhythm, expressiveness, body control, generation of movement ideas and responsiveness to music. Teachers use a balance of semi-structured activities and more open-ended activities. The sessions will last for approximately 20 minutes.

Obstacle course

In the spring, an outdoor obstacle course provides children with the opportunity to participate in sequences involving complex and combined movements. The course includes a

long jump, a balance beam, an obstacle run, and a hurdle jump. These stations draw upon skills found in many different sports such as coordination, timing, balance, and power (Maluf, 1996). These two activities foster children's bodily-kinesthetic intelligences.

Social Activities

Classroom model

The purpose of the classroom model is to assess the child's ability to observe and analyze various social events and experiences in the classroom. The child is presented with a small replica of his/her classroom, complete with furnishings and wooden figures with photographs of classmates and teachers on them. In much the same way, the child would play with a doll house, he/she can arrange the figures in the classroom model to reflect his/her understanding of peers, teachers and social experiences. The child is asked questions about their own preferences for activities and friendships, as well as the preferences and friendships of his/her classmates (Maluf, 1996). This activity fosters children's intrapersonal and interpersonal intelligences.

Science Activities

Treasure hunt game

The treasure hunt game is designed to assess the child's ability to make logical inferences. Before the game starts, different types of treasures are hidden under a number of different flags. The aim of the game is for the child to figure out the rules governing the placement of the treasures, and use these rules where he/she would find particular types of objects. The child is given a colored-coded box that he/she may use to keep track of the treasures found, but the child is not instructed how to use it. The way the child uses the box to sort the treasures can reflect how well he/she organizes information and figures out the rules.

Sink and float activity

The sink and float activity is used to assess a child's ability to generate a hypothesis based on his/her observations, and to conduct simple experiments. The child is shown a tub of water and an assortment of floating and sinking materials. Then the child is asked to make a series of predictions about the objects and to generate a hypothesis to explain the behavior of the objects. The child is also encouraged to try out his/her own ideas for exploring and experimenting with the materials (Maluf, 1996). These two activities enhance children's naturalist and existential intelligences.

Appendix J

Checklist for Teachers

Teacher's Checklist

The below checklist can help the teacher determine the child's strenghts to find out which intelligences the learner uses most often.

Instructions: This checklist is to be filled for each child. Read each statement carefully and mark a check in the empty box, indicating the learner's strengths.

	Defenitely	Probably	Maybe	Unknown
1- The child has a large vocabulary	☐	☐	☐	☐
2- The child uses numbers and numerical symbols easily	☐	☐	☐	☐
3- The child considers the world of plants and animals important	☐	☐	☐	☐
4- The child enjoys learning new words and does so easily	☐	☐	☐	☐
5- The child has musical interests	☐	☐	☐	☐
6- The child has good eye-hand coordination and enjoys sports	☐	☐	☐	☐
7- The child likes learning about nature	☐	☐	☐	☐
8- The child has the ability to represent what he/she sees by drawing or painting	☐	☐	☐	☐
9- The child's outstanding coordination and balance lead him/her to excel in high-speed activities	☐	☐	☐	☐
10- The child enjoys taking care of the classroom's plants	☐	☐	☐	☐
11- The child is good at playing an instrument and singing	☐	☐	☐	☐
12- The child likes being outdoors and looks forward to different physical activities each season	☐	☐	☐	☐
13- The child enjoys complimenting others when he/she has done well	☐	☐	☐	☐
14- The child can remember the tune of a song when asked about it	☐	☐	☐	☐
15- The child can easily duplicate color, form, shading, and texture in his/her work	☐	☐	☐	☐
16- The child likes the excitement of personal and team competition	☐	☐	☐	☐
17- The child is always honest with him/herself	☐	☐	☐	☐
18- The child talks a lot and enjoys telling stories	☐	☐	☐	☐
19- The child enjoys doing puzzles	☐	☐	☐	☐
20- The child likes to move around a lot	☐	☐	☐	☐
21- The child feels safe when he/she i he is around strangers	☐	☐	☐	☐
22- The child considers him/herself an athlete	☐	☐	☐	☐
23- The child loves to read and do so everyday	☐	☐	☐	☐
24- The child easily recognizes directions	☐	☐	☐	☐