MULTIPLE INTELLIGENCES: A CASE STUDY OF PALESTINIAN STUDENTS

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ABSTRACT

The objective of the study was to identify multiple intelligences among Palestinian students, and explore factors that can affect multiple intelligences. Multiple intelligence was evaluated using a 40-item index scale developed by Chislett and Chapman (2005) based on Howard Gardner's MI Model. It was administrated to three hundred and thirty-three secondary school students at Southern Hebron district. The data was statistically analyzed using Statistical Package for Social Sciences (SPSS). The findings revealed that Palestinian students had a moderate level of multiple intelligences. Of the students surveyed, 69.8% revealed multiple intelligences. The results demonstrated significant statistical differences in the multiple intelligence scores among the students according to their gender, stream, family birth rank, and parents' educational level. Academic achievement emerged as a significant predictor of multiple intelligences. The implications of the findings for practice are highlighted.

Keywords: Multiple intelligences, Palestine, academic achievement, students.

INTRODUCTION

As students enter adolescence, they are making what some researchers assert to be the most challenging transition of their lives. In order to send them on that transition equipped with self-knowledge of what they are good at, what they enjoy, how to learn something that is challenging to them, and conditions under which they can do their best work, they provided the best possible support for their success in school and beyond.

When we find out who our students are, we can support them in their learning, and everyone benefits. Differentiated instruction allows us to see learning from various perspectives and provides countless and unexpected teachable moments that we may otherwise miss. Multiple intelligences are considered the main gate for this attitudes and inclusive pedagogies.

However, educational psychologists tend to neglect this affective domain with most of their attention being devoted to cognitive, motivational, and behavioral constructs (Naceur, 2013). It is only recently that researchers have become increasingly aware of the role that emotions play in the understanding of intelligence in a school context (Naceur, 2010).

It is very difficult to define the word "intelligence" and the characteristics of intelligence. It is also challenging to measure intelligence and determine how intelligent we are. The debates on the appropriateness of IQ and the limitations of IQ testing are still in progress. According to Gardner (1983), the definition of intelligence in the Western society is very narrow. In terms of IQ tests, he suggested that the tasks they incorporate are in favor of educated individuals who have extensive educational background and are accustomed to testing. In 1983, Gardner developed the theory of Multiple Intelligences. He also introduced the concept that only one type of intelligences does not exist. Instead, he posited that individuals have several different intelligences. Initially, Gardner defined and compared seven different

categories of aptitudes and capabilities and referred to them as the term "intelligences." According to Gardner, every individual has all intelligences, but not to unified degrees (Spirovska, 2013).

The theory of multiple intelligences, developed by psychologist Howard Gardner in the late 1970's and early 1980's posits that individuals possess eight or more relatively autonomous intelligences. Individuals draw on these intelligences, individually and corporately, to create products and solve problems that are relevant to the societies in which they live (Gardner, 1983, 1993, 1999, 2006B, 2006C). The eight identified intelligences include linguistic intelligence, logical-mathematical intelligence, spatial intelligence, musical intelligence, bodily-kinesthetic intelligence, naturalistic intelligence, interpersonal intelligence, and intrapersonal intelligence (Gardner, 1999).

In order to be successful in educating all students, teachers should be aware of the students' individual differences; individual learning styles; and multiple intelligence profiles. In schools, logical and linguistic intelligences are emphasized in teaching. Students who are more developed in other intelligence dimensions are often ignored. Identifying and knowing students' intelligence profile is important and has implications for instruction. For example, if a student has limited success with verbal and mathematical intelligences, more success may be achieved by using some of the other intelligences. A multiple intelligence approach offers suggestions for providing a more reasonable and practical approach to schooling. Furthermore, since intelligence strengths and weaknesses are not static, they may be improved with different educational experiences. For this reason, multiple intelligences theory approach supports continuous assessment of intelligences starting at an early age (Ahvan, 2016).

On the other hand, there are four very practical implications for applying MI to career planning, selection, and development:

1) The chances for maximum career development are increased when there is a good match between the job tasks and an individual's MI strengths.

2) The strength and development of Intrapersonal intelligence is a key factor in positive career selection and advancement.

3) Career development will be enhanced when the person's significant others (parents, teachers, counselors, supervisors, peers, co-workers, etc.) are aware and supportive of the growth of an individual's particular strengths.

4) The negative impact of the person's weaknesses on career success will be minimized when strengths are emphasized and employed to bridge over any significant deficits (Shearer, 1999).

BACKGROUND AND LITERATURE REVIEW

Theory of Multiple Intelligences

According to the theory of multiple intelligences introduced by Howard Gardner (1983), the different types of intelligence can be defined and described as follows:

linguistic Intelligence

Linguistic Intelligence can be defined as the ability to use language and words in an effective manner, regardless of whether the medium of expression is written or spoken. Gardner (1993) exemplifies the type of people who are linguistically intelligent as poets. People who have the linguistic intelligence can also understand the linguistic messages from other people. One of the main components of the linguistic intelligence is semantics, along with phonology,

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syntax, and pragmatics. Moreover, those people who can be described as linguistically intelligent can effectively talk about language, persuade others or convey information. In terms of foreign or second language learning classrooms, it can be noted that students with predominant linguistic intelligence can easily express themselves in a spoken or written manner, easily match synonyms, comprehend a reading text or write a paragraph.

Logical-Mathematical Intelligence

Logical- Mathematical Intelligence can be described as the ability to reason and use numbers effectively. In addition, people who possess this type of intelligence can successfully carry out different mathematical operations, categorize and classify objects or phenomena easily, sequence events in order, calculate, and generalize.

The process of long chains of reasoning plays a central role. It appears very early in life that the child can make observations about objects that are no longer in his presence. Therefore, he is able to manipulate them, he can intuitively reason about their number, perform arithmetic operations, and as he grows older, he can replace them with increasingly complex symbols and functions. Students who have this ability, in terms of second or foreign language learning, can sequentially describe events in chronological order, classify language items easily, or successfully manage to work on problem-solving activities.

Visual-Spatial Intelligence

Gardner (1983, 1993) described spatial intelligence as the ability to imagine or form an image which represents the spatial world. Spatial intelligence refers to the ability to mentally reconstruct or modify the disposition of objects in space, concluding with the representation of ideas. People who are spatially intelligent are also perceptive of forms, shapes as well as colors. By the same token, it is indicated that spatial intelligence also involves the skill to graphically represent visual or spatial ideas. People with this kind of intelligence are often architects and designers.

Bodily-Kinesthetic Intelligence

Bodily kinesthetic intelligence is the ability to use the body or a body part in order to successfully perform a task or solve a problem. This type of intelligence is used by dancers, athletes or surgeons, as well as craftspeople. The bodily-kinesthetic intelligence comprises two skills. One is the control of bodily and physical movements (sports and dance). The other is the ability to manipulate objects and work with hands, for instance sculpting and crafts. A person with this kind of intelligence has physical skills which involve coordination, flexibility, speed, balance, etc. (Gardner, 1983, 1993).

Musical Intelligence

Musical intelligence can be described as sensitivity to rhythm and melody. According to Christison (1996), musical intelligence can be described as a global understanding of music. Torresan (2010) describes musical intelligence as allowing us to think in rhythmic, cadenced terms, and to enjoy and compose melodies. Of all intelligences, it is the most precocious and is among those where the genetic patrimony has the strongest influence. It includes aspects (intonation and timbre) related to auditory perception, along with other aspects (rhythmic organization) that are independent from it.

Interpersonal Intelligence

According to Gardner (1983, 1993), Interpersonal Intelligence can be described as the ability to understand and empathize with other people's emotions. This type of intelligence also involves the ability to understand the motivations and intentions of others. It also includes the ability to respond effectively to other people in some pragmatic way, such as "influencing

them to follow a certain action." In a language learning classroom, learners who posses this type of intelligence stand out in analyzing characters, retelling stories from different points of view or discussing different opinions.

Intrapersonal Intelligence

Intrapersonal intelligence can be defined as the ability to understand yourself, your own wishes, intentions, motivations, and feelings. Gardner (1983) believes that this type of intelligence is really important and at the same time, comprises the knowledge of other intelligences that people have or do not have. Besides, Torresan (2010) states the following about intrapersonal intelligence: Contrary to common belief, the knowledge of oneself does not exclude consideration of the relationship one has with others. In other words, the more the person discovers in the experiences of the other, a motive for self-reflection, the more the intra-personal intelligence is developed. Both kinds of intelligences have their roots within family relationships in the early infancy of the child: on one hand is the bond and the sense of separation the child has with his mother, while on the other hand, it is his observations of the motivations, the intentions, and the natures of people around him. Gardner added and described two additional types of intelligence. They are referred to as naturalistic intelligence and existential intelligence. Naturalistic intelligence can be described as the ability to recognize and classify animals and plants. Existential intelligence can be described as sensitivity to the processes of existence. Torresan (2010) defines this type of existence as follows: The existential intelligence is the human response to the limits and the processes of existence. Its uniqueness is the capacity to ask fundamental questions: Who are we? Where do we come from? Where are we going? What is the meaning of life? Where does love come from? Where does creativity come from? Existential intelligence is the latest one to be described by Howard Gardner and at this point, it is not very specifically defined (Spirovska, 2013).

RELATED STUDIES

Multiple Intelligences is a popular topic of debate in the field of education and social science. Several studies which have been published, researched this topic as a multi-dimensional phenomenon, which addresses both theoretical and applied research. In a recent study, Madkour and Rafik (2016) concluded that when students became aware of their multiple intelligences profiles, they managed to enhance their motivation, which helped them improve their language skills. The study of Ahvan et al. (2016) revealed that moderate inter-correlation exists between verbal-linguistic and visual-spatial intelligences, and academic performance achievement. Multiple intelligences such as logical-mathematical, visual-spatial, verbal-linguistic, intrapersonal, bodily-kinesthetic, interpersonal and naturalistic have a significant positive relationship with the academic performance achievement of students.

Moreover, the results of Kandeel (2016) showed an overall appearance of all multiple intelligences patterns of the sampled students in the following order: self, social, bodily, logical, verbal, visual, musical and natural intelligence; it was also observed that progress medical track students in most of the multiple intelligences patterns compared with other tracks (Engineering, Humanities). Also, there was an impact of visual intelligence, bodily, logical, and sometimes social, musical and natural on the Mathematics' achievement. Findings of Sistaani and Hashemian (2016) study revealed that there was a strong positive relationship between participants' intrapersonal intelligence and their tendency toward the cognitive and metacognitive strategies; and a potential positive relationship between visual/spatial intelligence and memory strategies. Linguistic intelligence and determination strategies were also found out.

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Furthermore, Alaee (2015) indicated that there is a relationship between language teachers' professional identity and their type of multiple intelligences, the highest one belonging to kinesthetic intelligence representing a large effect size. Furthermore, teachers' multiple intelligence type can predict their professional identity. The study of Spirovska (2013) concluded that the application of the Multiple Intelligences Theory in foreign language teaching and learning can be valuable and be positive experience for both teachers and learners.

Additionally, Lobez and Patron (2012) showed that the most dominant type of intelligence is interpersonal with approximately 80% of the students, followed by musical with 67%, and logical math with 56%. Interpersonal intelligence learn better through interacting with others, peer teaching, group brainstorming sessions, peer sharing, community involvement, apprenticeships, simulations, academic clubs, and social gatherings for learning purposes. The study of Taase (2012) concluded that verbal/linguistic and visual/spatial were the most predominant intelligences followed by logical/mathematical, interpersonal and intrapersonal in much lower ratios.

Moreover, the study of Gokhan (2010) found a significant difference between the environmental awareness knowledge levels and attitude scores of the experiment group and the control group. Consequently, it was also found out that the multiple intelligences instructional strategy activities were more effective in the positive development of the students' attitudes and their environmental awareness knowledge levels. In another study, Shearer (2009) concluded that low intrapersonal intelligence scores were found to be a significant characteristic of undergraduates with moderate and high levels of career confusion.

PURPOSES

A major component that many counselors and teachers have not examined is the concept of Multiple Intelligences (MI). Excluding MI under serves the students psychological, educational and career counseling needs, and may overlook nascent and developing skill areas that warrant further exploration and consideration. Including MI broadens the scope of potential career choices, especially in a school education environment. The traditional mode of teaching, which is termed frontal teaching or chalk and talk, has not been successful for all students as it is evidenced by the dropout rate of 50% in high schools in the United States (Snyder, 1999).

The objectives of the study were to identify the multiple intelligences among Palestinian students; explore the multiple intelligences indicators among the sampled population; explore the factors that can affect multiple intelligences; and open new prospects for further studies in the related field. The study, considered to be the first and leading of its kind to the authors knowledge, revealed multiple intelligences in the Palestinian educational system.

DEFINITION OF TERMS

Multiple Intelligences: Gardner uses the term "multiple intelligences" to refer to our skills or intelligences that assist us in understanding the world. The following intelligences were identified by Gardner (1983); verbal-linguistic, logical-mathematical, visual-spatial, bodily-kinesthetic, musical, interpersonal and intrapersonal. The naturalistic intelligence was later added to his list of intelligences (Vries, 2014).

Academic achievement is the successful outcome of education; traditionally, it is the grade point average (GPA) (Astin, 1993). Participants were asked to self-report GPA during 2015/2016 second semester.

HYPOTHESIS

Based on the reviewed literature, the set objectives, questions and variables of the study, the following hypotheses are proposed:

1. There are no statistical significant differences at $\alpha \leq 0.05$ in the multiple intelligences among Palestinian students according to their gender, stream, family birth rank, and parent's' educational level.
2. There is no statistical significant correlation at $\alpha \leq 0.05$ between academic achievement and multiple intelligences among Palestinian students.

Delimiting variables for the scope of the study was based on participants' demographic characteristics which included gender, stream, family birth rank, parent's educational level, and academic achievement (GPA), in addition to the multiple intelligences index.

METHODOLOGY AND DESIGN

The study adopted the quantitative research approach. The questionnaire is appropriate for the exploratory nature of the research. The population of the study was limited to the students of the secondary school in Southern Hebron district during the 2015/2016 academic year.

The overall sample comprised of three hundred and thirty-three students (130 males and 203 females) at Southern Hebron district. The sample was selected based on gender and stream. The sample size was calculated using the sampling web, *http://www.surveysystem.com/sscalc.htm*, sample size calculator, with a margin error of 0.05. The target population consisted of secondary school students in the Southern Hebron district during the 2015/2016 academic year, which included two thousand four hundred and eighty-four students: 968 males to 1517 females (Palestinian Ministry of Education, 2016).

Multiple intelligences were evaluated using a 40-item index scale developed by Chislett and Chapman (2005) based on Howard Gardner's MI Model, and it takes into consideration the cultural appropriateness in the Palestinian society. A 5-point Likert scale (always, often, neither, rarely, never) was used to measure the responses. The participants were requested to complete the questionnaire in selected secondary schools in the Southern Hebron district. The sampling survey instrument sought background information such as the participants' gender, stream, family birth rank, parents' educational level, and academic achievement (GPA).

Validation of the instrument proceeded in two distinct phases. The initial phase involved a group of referees and expert arbitrators who provided comments on the tool. The second phase involved the implementation of a pilot study (N=40) to validate the survey using exploratory factor analysis. Factor loading for all items exceeded 0.55 (0.57 to 0.75), which implied that those items were suitable to measure each item of multiple intelligences among the sampled students.

The reliability was tested using Cronbach's Alpha and Guttman split-half coefficients to ascertain reliability and consistency of the survey. Cronbach's Alpha and Guttman split-half for the survey instrument was 0.86 and 0.84, respectively, indicating very good reliability and consistency.

The demographic breakdown of the participants was as follows: gender, stream, family birth rank, parents' educational level, and academic achievement (GPA). In total, the sample comprised of three hundred and seventy students. The respondents' GPA was between 50 and 98 points (M 77.15 SD 11.45). The females represented 61.0% of the participants, while the remaining 39% were males. The sample was drawn from the arts and science faculties. The arts represented 67.3% of the sample, while 32.7% from the sciences. Half (57.7%) of the

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participants were middle family birth rank; their parents were less-educated; and 50.2% of the fathers had a secondary educational level compared to 52.6% of the mothers.

DATA ANALYSIS AND FINDINGS

Data was analyzed using the statistical package for social sciences (SPSS). The questionnaire items were rated on a 1–5 Likert scale (1=always, 2=often, 3=neither, 4=rarely and 5=never). The highest score indicated a high level of multiple intelligence. Descriptive statistics gauged multiple intelligences' scores among the sampled population. The following statistical techniques were measured: Pearson correlation, T.test, One way analysis of variance, Tukey test, Cronbach's Alpha, Guttman Split-Half Coefficient and Factor Analysis.

The mean score of multiple intelligences scale as experienced by the sample of three hundred and thirty-three participants was moderate (M 3.49 SD 0.40). The study observed that almost 69.8% of secondary school students had a moderate level of multiple intelligences.

Furthermore, the findings revealed the multiple intelligences indicators ranked in descending order as follows: it upsets me to see someone cry and not be able to help (M 4.43 SD 0.89); I enjoy nature, such as: mountains, plains, and rivers (M 4.38 SD 0.94). The students emphasize that they love adrenaline sports and scary rides (M 4.36 SD 0.95); I am a very social person and like being with other people (M 4.29 SD 0.91). Moreover, students indicated that they often have a song or piece of music in their heads (M 4.22 SD 0.98); they always know how they are feeling (M 4.15 SD 1.01); can tell easily whether someone likes them or dislikes them (M 4.13 SD 1.03); can always recognize places that they have been before, even when they were very young (M 4.12 SD 1.01). Students also indicated that they set themselves goals and plans for the future (M 4.11 SD 0.93); and like to think through a problem carefully, considering all the consequences (M 4.09 SD 1.00).

Moreover, the study investigated demographic breakdown of multiple intelligences among Palestinian students with the aim of identifying differences. The findings revealed that parent's education level does not signify any significant difference. However, it was found that gender, stream, family birth rank, and academic achievement are significant variables. In relation to gender, the differences favored females (M 3.60 SD 0.36) compared to (M 3.31 SD 0.40) for males: T.test value was (-6.758 P=0.000). As for stream, the differences favored science students (M 3.56 SD 0.35) compared to (M 3.45 SD 0.42) arts participants: T.test value was (2.527 P=0.012).

Furthermore, differences were found in student's family birth rank, which favored middle students (M 3.54 SD 0.39): F-value was (4.996 P=0.007). The findings also denoted that there are statistical significant positive correlations between academic achievement (GPA) and the average score of multiple intelligence among Palestinian students of which the R-correlation was (0.290 P=0.000).

DISCUSSION

The findings of the study revealed that Palestinian secondary school students had a moderate level of multiple intelligences category generally from the strongest to the weakest type of multiple intelligences possessed by the students. The combination of variations of the intelligences are in line with the theory of multiple intelligences. According to the theory, every one possesses all types of multiple intelligences developed in an individual which varies from person to person (Gardner, 1983). This is supported by the findings of Chan (2005) where the intelligence was moderate, or weak category types of intelligences and the combination of intelligences differ from person to person as well, in the study of Lobez & Patron (2012) that concluded that the most of students may be "strong" (or

"weak") in different types of intelligences. Additionally, most people can develop all their intelligences to a relatively competent level of mastery.

Whatever intelligences develop depends on three main factors, namely: Biological endowment that includes hereditary or genetic factors and insults or injures to the brain before, during, and after birth. Personal life historythat includes experiences with parents, teachers, peers, friends, and others who either awaken intelligences or keep them from developing. Cultural and historical background that includes the time and place in which human being were born and raised and the nature and state of cultural or historical developments in different domains (Armstrong, 2009).

According to the study's results, the females scored a higher level of multiple intelligences than males. Although patriarchal ideology is deeply rooted in the Palestinian society, where the notions of father and brother are prevalent, however, the unavailability of male students on school campus; the fewer number of curriculum activities females have than males; the more positively lenient in nature than male; the low participation for women in the labor force due to the patriarchal ideology; along with their adhering to the rules, directions of the school instructions; and the fact that females take more responsibility for their academic success throughout an academic semester will increase their multiple intelligences (Astin, 1993; Adena et al., 2013; Banat & Rimawi, 2015).

Multiple intelligences increased among the science students compared to the literary students. This result confirms the personality differences and self-efficacy which plays a critical role in secondary school student life. Furthermore, scientific students spend most of their time at the school; give more importance to community issues; join both voluntary work and extracurricular activities managed in the school; and feel concern and responsible for others at the school. Consequently, science students are more qualified to interact and understand others needs and emotions as well as help to solve problems. Therefore, this contributes towards their multiple intelligences.

Moreover, the differences established in students family birth rank, favored the middle students. The researcher inferred that the reason for the aforementioned is that the first and middle born baby has the focus of attention and care of the family which affect positively their multiple intelligences according to Watson (1930) on the learning simulation theory.

The study also revealed that parent's educational level does not denote any significant difference in multiple intelligences among Palestinian students. This implies that multiple intelligences are not actually influenced by this variable and is more likely to be affected by other factors other than parent's educational level.

Finally, a positive relationship was found between student's academic achievement and their multiple intelligences. Therefore, students who scored a higher multiple intelligences level were performing better academically. Academic achievement emerged as a significant predictor of multiple intelligences. This is a reflection of the importance of the affective domain, the surrounding environment, creativity, emotions, interpersonal skills, in addition to the cognitive domain in academic achievement. All of the above are fundamental components of multiple intelligences, which affect positively student's academic performance. The findings of this study are similar to certain findings in the related studies while certain aspects disagreed with others as well.

RECOMMENDATION

Based on the findings of this study, the following recommendations were made:

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1. Strengthen the principles of multiple intelligences among the teachers; through training courses, and update their knowledge in such important topic which affects positively their student academic performance.
2. Address the Palestinian curriculum with multiple intelligences' concept as an important component in academic performance.
3. Further studies to develop a clearer understanding of multiple intelligences using the case study and qualitative research design is recommended.

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