The Implications of Multiple Intelligence Theory and MIDAS Scale for Educators and Students in Jordanian Schools

Saher Al-Sabbah, Suzan Al-Sabbah and Farhanah Abod

Abstract— **The main purpose of conducting this study was to illustrate practical value of applying Gardner's theory of Multiple Intelligences (MI) to be used by educators and students. Moreover, this paper aimed to measure the level of students' MI in Jordanian schools. Two modes of Multiple Intelligence Development Assessment Scale (MIDAS) scale were adapted and validated to be used in this study; the Arabic MIDAS for students and the Arabic MIDAS for teachers and counselors. The first sample of this study consisted of 1,404 students from 13 secondary to measure students' MI and the second sample comprising of 48 students and 16 teachers to be used for the comparative purpose between the students and the teachers. The findings of this study indicated that, the students' perspectives at the musical intelligence and natural intelligence were negative and low, while at the linguistic, math, kinesthetic, spatial, interpersonal and intrapersonal intelligences were positive.**

Keywords— **Assessment, Counseling, MIDAS scale, Multiple Intelligence.**

I. Introduction

There are many international initiatives sought to help the Arab countries embrace modernization by effecting reforms in their educational systems, such as the United National Development Program (UNDP) [10]. Jordan is one of the Arab countries that seek to innovate and modernize its educational system. The innovation and reforms began since 1963 in terms of the educational planning, curriculum development, teachers' skills, assessment approaches and teaching methods [14]. The Jordanian authorities realized that educational development could support economic development because education is the main catalysts that promote social and economic development in countries throughout the world [7]. Many educationists asserted the need for a comprehensive policy reform which takes into account different dimensions of effectual reform [8].

As stated by [1, p7]:

"Comprehensive policy reform of the educational system should be geared in improving quality, standards, relevance, efficiency, and the access. In this regard, any mechanisms and terms of reference built into policy framework should include identifying of regional needs and priorities; mobilizing human and financial resources within the region according to those need priorities; setting up a collaborative mechanism that allows countries to share and exchange information, experiences and expertise in the planning and implementation of the needed reforms".

Incentive reforms started to address behavior problems and deal with the motivation of those involved in the education process. For example, the assessment approach in evaluating students' abilities could be tied to higher students' examination scores, thus ensuring accountability for performance and enhancing the quality of education [6] , [11]. The introduction of the assessment approach in different subjects was one of the recommendations of the 1987 National Conference on Education Reform [9]. Assessment is used in the teaching-learning processes, which involves systematic gathering of information about individual students' attainment by identifying their strengths and weaknesses.

The Ministry of Education began to introduce Diagnostic Assessment for Arabic language, English language, and Mathematics through a school-based program development and class's materials in scholastic year 1994/1995. Development began in Arabic language, English language, and Mathematics for grade six. Diagnostic assessment is an effective way of giving attention to individual differences, and ensuring that as many students as possible perform to the highest level attainable by them. Teachers reported many benefits from using diagnostic assessment. They said that the diagnostic assessment processes help them to determine their objectives, give them a deeper understanding of their subjects, and alert them to learning difficulties face by students. They also reported to have much more detailed and meaningful information of their students and to know their strengths and weaknesses [16].

To this day, the Jordanian educational system still used the traditional assessment techniques in evaluating students' abilities and in measuring students' intelligences in Jordanian schools. The Jordanian teachers measure the students' academic achievement using the traditional assessment such as paper and pencil test. Therefore, in line with the comprehensive policy reform launched in Jordan and in order to improve the quality of the assessment systems in Jordan, there is a need to identify a new goal-oriented method to measure student's intelligence such as the application of Multiple Intelligence in the schools [7].

At this point, the assessment system in Jordan needs a new practical method to measure the students' performance and to help teachers understand the students' intelligences. The

Manuscript received January 10, 2011

Saher Ail Al-Sabbah, Science University of Malaysia (USM), 11800 Penangt Malaysia, phone: 006-0174343036 (E-mail: saher_usm@yahoo.com)

Suzan Al-Sabbah, Philadelphia University, Jordan, Amman, Jordan, phone 00962-777797862 (E-mail: suzansabbah@yahoo.com).

Farhanah Abod, General Hospital of Penang, Malaysia. Phone: 006-0174346002, (E-mail: manna_1610@yahoo.com).

method that is being used in schools is still solely assessing students' academic achievement but lack the assessment of their intelligence in other aspects. Thus, there is a need to find another method to measure students' multiple intelligence and adapt a new instrument that can be used by counselors and teachers to measure students' potentials and thus can be used in teaching and counseling [7] , [16].

II. Multiple Intelligence Theory

Gardner developed the theory of Multiple Intelligence (MI) that has been embraced by a range of educational theorists and significantly applied by teachers, administrators, counselors and parents to the problems of schooling [5]. A number of schools have developed the structure of their curricula according to the intelligences, and have designed classrooms and even overall schools to reflect the understandings of MI theory. In his theory, Gardner suggested eight different intelligences to account for a broader range of human potential in children and adults [5]. He identified eight intelligences that everyone possesses to a varying degree: the Musical Intelligence (Music smart), Bodily-Kinesthetic intelligence (body smart), Logical-mathematical intelligence (number/reasoning smart), Spatial intelligence (picture smart), Linguistic intelligence (word smart), Interpersonal intelligence (people smart), Intrapersonal intelligence (self smart) and Naturalist intelligence (nature smart).

According to [3], [4] it is necessary to place equal attention on individuals who exhibits different types of intelligence e.g., the artists, architects, musicians, naturalists, designers, dancers, therapists, entrepreneurs, and others who enrich the world in which we live. Unfortunately, many children who have these intelligences do not receive much reinforcement in school.

One of the instruments used to measure students' MI is MIDAS scale, which was developed by Shearer to measure multiple intelligence of human being. This instrument has 119 items [12]. It is stated that this instrument is unsuitable for different population because they have different characteristics specific to traditions and culture. This instrument needs to be adapted to the local context, so that it is suitable to assess students for a particular population.

Thus, many researchers have translated MIDAS from its source language to other languages so that it can be used in other countries. In Malaysia, Yoong (2001) translated MIDAS to the Malay Language for the Malaysian culture and Miller [as cited in 13] has adapted MIDAS for the private Chinese schools. Recently, in Iran, Amirahmadi [as cited in 13] has adapted and validated Teen-MIDAS for university students.

III. Method

This study aimed to measure the level of students' Multiple Intelligence and investigate the MI implication for education system in Jordanian school. To achieve the objectives of this study, the researcher translated and adapted MIDAS scale into Arabic. Two modes of MIDAS assessment were used in this study: students' self-reporting and teachers' rating of the students' MI. This study comprises of two groups of sample: the first group of the sample consisted of 1,404 students selected from 13 schools out of the total number of 206 schools that represented the population of this study. The responses obtained from the students were used to measure the level of students' MI in Jordan. The second group of sample comprised of 48 students and 16 teachers. The responses obtained from the teachers and the students in the second sample were used to determine the levels of agreement between the responses of the students' self-report and those of the teachers' rating. Based on the findings in this study, the researcher highlighted the implications of MI theory and MIDAS scale for educators and students in Jordanian school.

The instrument used in this study was MIDAS scale adopted from Shearer [12]. This scale attempts to measure Gardner's eight intelligence components. MIDAS provides an array of meaningful real world activities for people to answer the instrument items in self-report or assessment by a knowledgeable informant. The respondents assess the frequency or duration of person's performance or his/her displayed enthusiasm on that activity. The Arabic MIDAS that was adapted in this study contains 108 items measuring eight MI constructs such as music intelligence, kinesthetic intelligence, math/logic intelligence, spatial intelligence, linguistic intelligence, interpersonal intelligence, intrapersonal intelligence, and natural intelligence. The MIDAS scale was distributed to 1,404 students of Jordanian high secondary schools to collect their responses. All the answer sheets were returned to the researcher. The students responded to the 108 items on a six points Likert scale ranging from 1 to 6 as follows: "never" was given a value of 1, "sometime" with a value of 2, "often" with a value of 3, "almost all the time" with a value of 4, "always" with a value of 5, and "I don't know" with a value of 6 when the respondent is not sure about the answer. The sample was predominantly grades 11th and 12th Jordanian secondary schools students with the inclusion of 48 students and 16 teachers in the second part of this study.

TBALE I. The Number of Items in Original Midas and in the Arabic Version of Midas

Intelligence	No. of Items in Original MIDAS	No. of Items in Arabic MIDAS
Musical	1 to 14	1 to 8
Kinesthetic	15 to 27	9 to 21
Math\Logic	28 to 44	22 to 36
Spatial	45 to 59	37 to 51
Linguistic	60 to 79	52 to 71
Interpersonal	80 to 97	72 to 89
Intrapersonal	98 to 106	90 to 97
Natural	107 to 119	98 to 108
Total	**119**	**108**

The original MIDAS contains 119 items measuring eight MI constructs such as music intelligence (item 1 to 14), kinesthetic intelligence (item 15 to 27), math/logic intelligence (item 28 to 44), spatial intelligence (item 45 to 59), linguistic intelligence (item 60 to 79), interpersonal

intelligence (item 80 to 97), intrapersonal intelligence (item98 to 106), and natural intelligence (item 107 to 119).

From the table above the original MIDAS has 119 items and the modified Arabic version has 108. All the items in the original version of MIDAS were carefully translated and modified to the Arabic language to ensure equivalence to its original meaning, and the contents of eleven items have been changed such as using local examples to fit the Arabic context. The items in the finalized Arabic version of MIDAS have been modified to be 108.

IV. Findings and Discussion

The findings of this research indicated that the lowest scores of students were on the musical and the natural intelligence compared to the rest of the intelligence domains. The students scored high on the linguistic intelligence, math/logic intelligence, and spatial intelligence, intrapersonal and interpersonal intelligence. This could be due to the emphasis given by the secondary schools in Jordan which do not focus on students' talents and creativity. Most of the teachers do not give enough attention to explore their students' ability in terms of musical and natural intelligences' skills.

In more particular, the results showed the students' scores on the eight intelligence domains on likert scale of six categories as in the following table:

TBALE II. Percentages of Students Responses on the Likert Scale of the Eight Intelligences

Intelligence	Never (1)	Sometime (2)	Often (3)	all the time (4)	Always (5)	don't know (6)	Average
Math	25 1.8%	61 4.3%	102 7.3%	612 43.6 %	593 42.2 %	11 0.7%	89.5%
Linguistic	52 3%	118 8.4%	220 16%	609 43%	400 28.5 %	5 0.3%	79.5%
Kinesthetic	58 4.1%	90 6.4%	277 19.7 %	509 36.3 %	466 33.2 %	4 0.28 %	79.4%
Intrapersonal	152 10.8 %	250 17.8%	290 20.7 %	401 28.6 %	302 21.5 %	19 1.4%	60.5%
Spatial	130 9.3%	260 18.5%	352 25%	406 28.9 %	260 18.5 %	6 0.43 %	60%
Interpersonal	220 15.7 %	352 25%	340 24.2 %	278 19.8 %	210 15%	4 0.3%	47%
Musical	280 19.9 %	480 34.2%	438 31.2 %	129 9.2%	68 4.8%	9 0.6%	29.6%
Natural	282 20%	468 33.3%	462 32.9 %	136 9.7%	41 2.9%	5 0.4%	29.5%

From the table above, 89.5% of the students scored positive on the mathematical intelligence scale by selecting the positive choices on Likert scale (often or almost all the time and always). Also 79.5% of the students scored positive on the linguistic intelligence scale and 79.4% of them scored positive on the kinesthetic intelligence scale. As for the intrapersonal and spatial intelligences scales, 60.5% of the students scored positive on the intrapersonal scale and 60% scored positive on the spatial intelligence scale. For the interpersonal intelligence, 47% of the students scored positive on the interpersonal intelligence scale. Whereas, the students scored lower on the musical and natural scales. About thirty percent (29.6%) of the students scored positive on the musical intelligence scale and 29.5% of them scored positive on the natural intelligence scale.

From the results shown in Table II, the students scored very high at mathematic intelligence as will as the kinesthetic and linguistic intelligences, which means that the academic system or the students placed emphasis on the mathematic, kinesthetic and linguistic intelligences as preferable skills compared to the rest of the other intelligences. This implies that the schools curriculum and activities are inclined to focus only on these kinds of intelligence and not on natural and musical intelligences. The personal intelligence (interpersonal and intrapersonal) and the spatial intelligence have low scores too compared to the math, linguistic and kinesthetic intelligences. This may due little focus given to train students about awareness of self and others. The intrapersonal and interpersonal intelligences are presented as separate related functions of the human brain (especially the frontal lobes). They are described as two sides of related capacities, in which intrapersonal emphasizes self-knowledge and interpersonal involve understanding other people. Vital functions of intrapersonal intelligence include accurate self-appraisal, goal setting, self-monitoring/correction, and emotional self-management [2]. For the spatial intelligence, the results showed low scores, which may be due to importance placed on teaching math, linguistic and kinesthetic, and little focus given to help students develop spatial intelligence such as artistic design, map reading, and working with objects. The lowest scores were on natural and musical intelligences in this study.

The students scored very low on these two intelligences. This may due to the teaching of Islam which considers music intelligence as a forbidden issue. Even though Islam requests Muslims to be merciful toward the animals, Islam does not allow keeping all kinds of pets at home. This could be the reason for the students scoring low on the natural intelligence scale or they do not give enough time to keep pets or grow plants at home.

In addition, the findings of this study indicated to a significant correlation between the students' self-reporting and the teachers' ratings of the students' MI as in the following table:

In Table III, the Spearman rho correlation between the students and teachers for the overall MIDAS scale is (0.73**). It indicated that the teachers can be used as a good resource to evaluate the students' MI by using the Arabic MIDAS scale and this may due to the time the teachers spend with their students at schools.

TABLE III. The Spearman rho Correlation between The Students' Self-rating and Teachers' Rating

Correlation		Teachers
Spearman's rho	Students	**.73****
Sig. (2-tailed)	.	**.004**
N	48	16

**. Correlation is significant at the 0.01 level (2-tailed).

V. Conclusion

From the findings of this study, the researchers highlighted the implications of using Multiple Intelligence by the educators, students and counselors in Jordan:

A. Implication for Students

1) From the investigation of the MIDAS validity in this study, the validated Arabic version is effective in measuring students' MI in their schools. The examination and adaptation of the items revealed that, the items are matching with the Arabic culture, which enable the Arabic educators to use an Arabic version of MIDAS in measuring students' MI in any Arabic region. There are several implementations of the MIDAS instrument for the educators, companies, and students. The Arabic version of MIDAS in this study provides a lot of information about the students' MI in their early education and in their secondary schools. This instrument can be helpful for students to understand themselves and their specific strength and weaknesses.
2) In addition, one of the implications of the Arabic version of MIDAS for students is the vocational counseling, which enables them to determine whether to continue their studies in the academic stream or in the vocational stream based on their intelligence inclinations and interests, which can be measured by using MIDAS scale.

B. Implication for Counselors

1) The counselor can train the teachers to use the Arabic MIDAS scale and consults with them to guide them to develop curriculum and activities that promote the different intelligences among their students.
2) The counselor can promote the use of the Arabic MIDAS scale in the companies so that they can use it for the purpose of career development and also fit the workers with specific dominant intelligences with specific job.
3) The counselor can also use the Arabic MIDAS scale to understand the student's intelligences. The MIDAS results can help the counselor to guide the students to develop their strength and use various strength-based learning activities to enhance their strength in their developmental process.
4) The counselor can also use the Arabic MIDAS scores to assist the students to make career choices in line with their potentials.
5) The adapted and validated Arabic version of MIDAS can be used by teachers and parents to assist the students in vocational counseling to determine whether to continue their studies in the academic schools or in the vocational schools based on their intelligence strengths and interests, which can be measured by using MIDAS scale.

C. Implication for Educators

1) The use of Arabic MIDAS was found to be very helpful in this study. If the educators are not using intelligence instrument in measuring their students' intelligence abilities, the teachers will have unclear idea about their students' intelligence level.
2) The Arabic version of MIDAS in this study provides teachers with additional information in their students' thinking and behaviorism. Further more, Arabic MIDAS can be used by teachers and counselors during counseling sessions. The information obtains from the teachers' rating of their students' MI in this study, may be useful to categories students, and the means by which these categories best deal with [17]
3) In the education field, the MI theory should be included into the educational system in Jordan in order to involve students with various activities that may be able to improve their Multiple Intelligence skills.
4) The contents and certain aspects of An Arabic version of MIDAS need to be included into the schools' content, in order to make them more suitable for both teachers and students. Content such as the music intelligence that can be represented in the school content by the enhancement of the music curriculum activities, and by giving attention to nature the students' various talents, this can be applied on all the remaining aspects in MIDAS, as the kinesthetic intelligence, mathematic/logic intelligence, .Etc.

Finally, the adapted and validated Arabic version of MIDAS can be used in Jordanian companies to provide them with information within the career development field as to how workers might successfully employ their more dominant intelligences. The MIDAS provides an objective measurement of the Multiple Intelligence as reported of a person by the person or a knowledgeable informant and the applicability of the Arabic version of MIDAS in career exploration for selecting employees for suitable jobs based on their intelligence strengths

References

[1] V. Billeh, International assessment of educational progress. Jordan's experience, No. 28,The world bank group, 2003.
[2] Gardner, H. (2003). Audiences for the theory of multiple intelligence.Teacher College Record. Columbia University, vol.106 no.1. pp 212-220. January 2004.
[3] H. Gardner, Frames of mind (10th anniversary edition The theory of Multiple Intelligences. Library of Congress Cataloging. In Publication Data, 1993, New York: Basic Books, pp. 73-237.
[4] H. Gardner, Intelligences reframed. Library of Congress Cataloging. In Publication Data, 1999, New York: Basic Books, pp. 27-47.
[5] H. Gardner, Frames of Mind: The theory of multiple intelligences. Library of Congress Cataloging. In Publication Data, 1983, New York: Basic Books, pp. 3-12.
[6] L. Hindi, Kingdom Jordan leads MENA in education reform. Report No. 28, Washington: Embassy of the Hashemite kingdom of Jordan, 2008.
[7] A. Hussain, Introduction to Multiple Intelligence theory (1 ed). Philistine, Gaza: Dar Alketab ALjameie, 2005.
[8] M. A. Karsou, "An evaluation of action pack textbooks as perceived by Jordanian English language supervisors, teachers and students". Unpublished Master Thesis, The University of Jordan, 2005.
[9] Ministry of Education, "Diagnostic assessment in Jordan" Teacher's Letter, 7(2), 45-53, HKJ Amman, Jordan: Department of Planning and Statistics. 2000.
[10] A. Z. A. Samak, "An exploration of Jordanian English language teachers' attitudes, skills, and access as indicator of information and communication technology integration in Jordan". Unpublished Doctor of philosophy, Florida state university, Florida, 2006.
[11] M. Selinger, The Jordan education initiative. Australia: Asia Pacific Public Sector, 2007.
[12] B. Shearer, B, The MIDAS: A professional manual. Kent, OH: MI research and consulting 1994.
[13] B. Shearer, MIDAS new update. International translations and adaptations, January, 2003.

[14] S. Yamani, Towards a national education development paradigm in Arab world: A comparative study of Saudi and Qatar. Online journal for issues related to Southwest Asia and Islamic civilization, 2006.
[15] S. Yoong, Multiple Intelligences: A construct validation of the MIDAS scale in Malaysia. Paper presented at the International Conference on Measurement and Evaluation in Education (ICME), 2001.
[16] Z. Jabber, Multiple Intelligence and the implementation in the school (1 ed.). Cairo- Egypt. (2003).
[17] Dababneh, K. (1998). The Factors that effect the gifted students' thinking and intelligence in Jordanian schools. Unpublished Master Thesis, The Jordanian University, Jordan-Amman.