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The Mental Profile (Multiple Intelligences) of the Students of the Faculty of Physical Education for Girls, ZagazigUniversity

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Abstract:
The multiple intelligences theory presents new methods to the teaching and learning process. In these methods, the learner is the main focus of the learning process which helps him exploit his capacities and enhance them. Such methods activate the educational action, and help it keep pace with the scientific development which achieves the cognitive psychology that drives these intelligences in their scientific frame.

The real birth of the theory of multiple intelligences came with the publication of Howard Gardner's book "Frames of Mind" in 1983. The theory greatly contributed to bringing to an end the tradition of Solitary Intelligence. According to the theory, people are born with multiple intellectual capacities, some of which are strong, some are weak. The effective of education has to develop the weak capacities and enhance the strong ones.

This theory also pointed out that intellectual capacities were not related to mechanical heredity which denies the effect of education and community on the mental capacities. Rather, it showed the great flexibility of the humankind throughout the different phases of life.

The theory showed that Intelligence is just the ability to solve the problems encountered by man, or to make products of value to the society. With this definition, Gardner departed from the abstract and conceptual fields of intelligence and thought of intelligence as a technical way in work and daily behavior (25).

In the nineties, interest in this theory grew in several programs, from early childhood to faculty programs and adult education, particularly in the field of education because it is one of the major fields that must change, from the basic concepts and nomenclatures to all the components of the educational system (20).

Gardner (1993) pointed out that multiple intelligences theory presents new methods to the teaching and learning process. In these methods, the learner is the main focus of the learning process which helps him exploit his capacities and enhance them. Such methods activate the educational action, and help it keep pace with the scientific development which achieves the cognitive psychology that drives these intelligences in their scientific frame (24).This theory stressed the fact that if anyone possesses a great linguistic ability for example, does not necessarily means that he possess an equal ability in mathematics; and if anyone has achieved a low standard in the scientific education curriculums, this does not mean that he will have the same low standard in all other subjects. Thus, the learner has potential types of other intelligences which will help him succeed at school and faculty, or in his practical and scientific life, if these strong intelligences were recognized, discovered, and used successfully in the light of the educational process.

According to Multiple intelligences theory, there are many factors that affect developing intelligence such as ethical, cultural, political, and social factors. i.e., factors which have their effect on the individual.

The theory suggests that each type of intelligence is functionally related to one of the

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functions of the right and left hemisphere. The right hemisphere functions involve innovation, the overall view of the matters, collecting information from mental images, distinguishing faces and places, the spatial treatment, intuition, visual intelligence (imagination and discovery), musical intelligence, solving problems, exercises, activities, and writing poetry. The left hemisphere functions are convergent thinking, critical thinking, logical intelligence, linguistic and writing capacities, mathematics and science, exams and tests, the Beoca area is responsible for producing the grammatical sentences while the frontal lobe of the brain plays a prominent role in the interactive knowledge.

It is clear that the intelligence capacities have a nervous / mental base. So, any mental capacity can be developed at any age. That is, intelligence is a multidimensional phenomenon that exists at several levels of our brain, and body systems. There are many and various ways to develop knowledge, understanding, imagination, learning, innovation, and information processing.

Multiple intelligences theory was soon followed by numerous foreign and Arabic studies whose aim was to track the effects of the theory in particular areas and types of society.

Lareaz's study (1994) found out that the child is born with a limited capacity of intelligences, and the society enhances these capacities. The civilization and cultural influences activate the development of intelligences the individual has, that is, intelligences are fed to grow and reach a higher degree.

Leveny`s study (1994) promoted the construction of new curriculum to teach multiple intelligences and develop new educational models depending upon the theory and specify methods to identify the multiple intelligences.

The study by Branton Schearor (2006) suggested that measuring of multiple intelligences helps teachers to know their students' characters, strengths and weaknesses, change the teaching methods, and use reinforcing activities that strengthen the educational process, develop students' strengths, and improve their human capacities (3).

"Koffs (2003) and Melanie Mitchaed Kernode (2004) and found that using multiple intelligences activities in teaching sport activities help develop the learning process and acquire better practices (18).

There are many Arabic studies on multiple intelligences such as the study by Ezzo Ismael and Naila Naguib (2003) which found that it is necessary to develop awareness of the importance of the multiple intelligences theory in learning, and to include methodical activities when developing teachers training programs in order to uncover learning strategies of multiple intelligences to identify points of strength and weakness and to develop the former. (7).

Mahmoud Esmat's study (2006) discovered the possibility of using the multiple intelligences theory activities to spot and classify sport talents in children (15).

Manal Mohamed El-Zaki (2006) discovered a significant correlation between types of multiple intelligences and the cognitive and applied outputs of the motor rhythm curriculum (16)

HodaAwad and Mohamed Abd El Aziz(2008)found that there is a correlation between multiple intelligences and admission tests held for students of the faculty of physical education for girls in Alexandria (12).

Marwa Omar (2009) concluded that there are differences between the arithmetic means of multiple intelligences scores of winners and losers in a sample of beginners ofsport activities. Motor intelligence ranked first, followed by spatial intelligence (17).

Gardner (1993) and Armstrong (2000) indicated that everybody has a number of intelligences, which are a group of skills that enable the individual to solve problems he/she faces. They indicated also that man has eight intelligences for the multiple capacities he has. If he loses one of them, he will employ the rest according to his/her capacities. The degree of one intelligence type differs from one person to another (2), (1).

Since practicing sport activity is one of the important factors which contribute to building the individual's capacities through the opportunities it creates for the person to express himself and his capacities, and also to satisfy

his/her wishes, realize his personal ambitions, and develop his natural abilities in an acceptable way that would contribute to integration of his character (21).

Physical education faculties offer a mixed educational program combining academic and practical subjects and sport activities, beside this the program of the Faculty of Physical Education for Girls, Zagazig University, where the author of this paper works, mostly consists of sport activities and martial arts (judo, karate, weapon and taekwondo),taught in small groups by using various methods.

Through a review of previous studies, the author aimed at identifying the effect of the faculty's four-year program on developing multiple intelligences, to explain which of these intelligences is most developed as a result of this educational program, and to identify the mental profile of the fourth year students after completing the four-year educational program, using Gardner's multiple intelligences measurement.

The study questions:

1. Does the faculty educational program affect the development of multiple intelligences?

2. Are there any differences in the effect of the faculty educational program on these eight intelligences to be measured?

3. What is the mental profile of the faculty students after completion of the educational program?

Objectives:

The study aims at identifying the effectiveness of the faculty educational program on developing the eight multiple intelligences discovered by Gardner, and to discover the mental profile of the faculty students.

Hypotheses:

1. The faculty educational program has an effect on developing multiple intelligences according to Gardner's theory.

2. There are statistically significant differences in multiple intelligences between the arithmetic means of scores obtained by the fourth year students.

Terminology:

Multiple intelligences

This term attributes to a theory which suggests that human intelligence is not of one type, as is conventionally believed. Rather, it is divided to a group of different intelligences combined in one person with approximate degrees. These degrees determine the extent of the talent demonstrated by this person in any one field (24).

Procedures:

Methodology:

The survey and the descriptive methods were used, being suitable to this type of study.

Research Community:

The research community was intentionally selected from the fourth year female students in the Faculty of the Physical Education for Girls, ZagazigUniversity, in the academic year 2010/2011. The total research community consisted of 280 students. 80 students were excluded for failing in one of the four years of study, leaving 200 students to form the research community.

The sample of the basic study consisted of 150 students. These were students who never failed in anyone academic year to determine variables that control the study. The aim was to include students who only spent four years of study ending up with the second term examination of the fourth year in May and June 2011.The following table shows the classification of the research community.

Research Tools:

The Multiple Intelligences Measurement according to Gardner's theory:

The researcher consulted scientific references and previous studies to identify multiple intelligences measurements. She applied the measurement that has been translated and

prepared by the general directorate for education, the educational supervision center in Madina, the talented persons department, 2004. The index includes eight intelligences identified by Gardner. Every intelligence has 7 sentences which express it with a total of 56 sentences, including the whole index. In front of every sentence, there is an assessment scale ranging from one to five degrees. This index was chosen for the following reasons:

1. The list of the indicator is international and new.
2. The sentences of the list are clear and fit for the level of the faculty students.
3. Its sentences fit the faculty theoretical and practical program.

These eight intelligences are:

1. Verbal – linguistic intelligence.
2. Musical – rhythmic intelligence.
3. Logical – mathematical intelligence.
4. Visual – spatial intelligence.
5. Bodily – kinesthetic intelligence.
6. Interpersonal intelligence.
7. Intrapersonal intelligence.
8. Naturalist intelligence.

The researcher found the validity and reliability of the indicator on the pilot sample of 50 students from the research community and outside the basic research sample.

Applying the index:

Ensuring the validity and reliability of the index, the researcher applied it on the basic study sample (150) students in the period from 15/5/2011 to 19/5/2011.

Statistical Analysis:

The researcher used the following statistical treatments:

1. Means.
2. Standard deviation.
3. Coefficient of torsion
4. "V" test to find differences.
5. L.S.D test to find the significance of the differences between the means.

Table (1)
Mean, standard deviation, median, and torsion coefficientof the study sample in intelligences

S	Types of intelligences	Mean	Standard deviation	Median	Torsion Coefficient
1	Verbal – linguistic	22.36	4.66	23.00	-0.412
2	Musical – rhythmic	25.11	3.61	23.00	1.753
3	Logical – mathematical	22.24	4.79	23.00	-0.475
4	Visual – spatial	24.37	3.14	24.00	0.353
5	Bodily – kinesthetic	30.04	3.26	30.50	-0.423
6	Interpersonal	26.04	4.83	26.50	-0.285
7	Intrapersonal	24.96	4.42	26.00	-0.0705
8	Naturalist	22.05	5.93	22.50	-0.227

Table (1) shows means, standard deviation, and median of the study sample in the study variables in multiple intelligences. It shows that the study sample lies between +3,-3. That is, the sample is normally moderate in these variables.

Table (2)
Analysis of variance between the student scores in multiple intelligences
N = 150

No	Change source	The total of squares	Freedom degrees	Variance	The value of "D"
1	Between the groups	7393.7	7	1056.24	53.534
	Inside the groups	23520.6	1192	19.73	
	Total	30914.30	1199		

The tabular value of "D" is from 0.05 = 3.33

Table (2) shows the analysis of variance between the eight intelligences of the research sample. It shows that calculated "D" value is>tabular "D", i.e., there are significant differences in the eight intelligences degrees of the research sample

Table (3)
Significance of differences between the intelligences scores means with L.S.D method

S	Types of intelligences	Means M	Differences between means							
			1	2	3	4	5	6	7	L.S.D value
1	Bodily – kinesthetic	30.04								0.991
2	Interpersonal	26.04	4.0							
3	Musical – rhythmic	25.11	4.96	0.93						
4	Intrapersonal	24.96	5.08	1.08	0.15					
5	Visual – spatial	24.37	5.67	1.67	0.74	0.59				
6	Verbal – linguistic	22.36	7.68	3.68	2.75	2.60	2.01			
7	Logical – mathematical	22.24	7.80	3.80	2.87	2.72	2.13	0.12		
8	Naturalist	22.05	7.99	3.99	3.06	2.91	2.32	0.31	0.19	

Table (3) shows the differences between the means of intelligences scores, the value of the least significant difference (L.S.D), and the significance of these differences.

Discussing the results:

Table (1) shows the mean, standard deviation, and torsion coefficient of the basic sample students scores in the eight multiple intelligences measured. It shows that the students scores ranged between (30.04 – 22.05 scores), i.e., they were higher than the measurement mean of each intelligence, as the degree mean of each intelligence is (21 degrees). This shows that the faculty program affects developing the eight measured intelligences differently.

The researcher attributes this to the effects of the faculty program in the four years, with its practical subjects related to of sport activities and theoretical subjects, on these intelligences. The curriculum includes a group of small and big games, track and field events, aquatic sports and combating games, in addition to exercises, dance, and rhythmic gymnastics. Besides, there are educational, psychological, social, and health subjects, methodology, organization, and administration, all of which are theoretical subjects beside Arabic and English languages and computer which are distributed over the four academic years. All of these have an effect on achieving kinesthetic, inter-personal, musical, intrapersonal, spatial, linguistic, mathematical, and applied intelligences with degrees higher than the mean degree of each intelligence computed separately.

This is in line with Marwa Omar's study (2009) and Manal Mohamed Zaki(2006) in that the sport activities affect developing multiple intelligences. Also, it is in line with what is mentioned by "Mostafa Bahy and Hussain Heshmat 2004 that the mental processes can be activated by the physical training because the key of this development is the repetition. This is what happened in training of the sport activities. The repetition to improve the performance of the kinesthetic skill leads to build a brain strategy, innovation and increasing memory strength (17)(16) (23).

It also agrees with what Fawzy El Sherbeny (2010) mentioned, quoting Kofalek and Olson (2004)that the various learning aspects lead to an arrangement of and correlation between the neurons, so that it could develop intelligences(8). It also agrees with what Thomas Armstrong (2003) mentioned that using music, cooperative learning, artistic activities, multimedia, and field trips help developing human intelligences. This is what happens in teaching numerous sport activities in the faculty, as teaching is done in small groups and music,

kinesthetic expression, rhythmic movements are used while doing the exercises and performing also sport shows. All this helped in developing multiple intelligences of the faculty students. The first assumption is thus achieved: "The faculty educational program has an effect on developing multiple intelligences according to Gardner's theory"(1).

Table (2) illustrates an analysis of variance between the degrees of the student in the eight intelligences sentences measured. It shows that there are statistically significant differences between students' degrees in the eight intelligences. The value of calculated "D" is 53.53 degrees higher than the value of tabular "D" at 0.05 which is 3.33.

This means that there are differences in the development of students' multiple intelligence. The author attributes this to the fact that the subjects the students learn differ in their effect on these intelligences, some of which help developing some intelligences and don't develop the others with the desired degree. The researcher attributes this also to the fact that the intelligences existing degree of the students on joining the faculty is different from one another, and that the faculty program helps develop what is high, and what is weak but with a lower degree.

This is in line with Gardner's statement(1993)that individuals have different degrees of intelligences types. Teaching and strategies should make good use of strengths and improve weaknesses, if intelligences measurements are used at the beginning of the student's enrollment in the faculty to discover the strong types and patterns of intelligences and the weak ones, and endeavor to develop the latter by using a group of activities and exercises that would develop weak intelligences. The results of these measurements could guide students to the types of activities suitable to their strong intelligences, and to practice the activities that develop what is weak. This helps student to excel in their study and achieve higher levels of education.

The results of these measurements will guide the faculty staff members to use special teaching strategies of multiple intelligences patterns, to help students increase their motivation towards perception and self confidence, and to use these strategies individually with each student to help her face anxiety, increase self confidence and take the correct decisions in every task assigned to her(2).

This agrees with what Manal El Guindy (2006) who stated that teaching in small groups while using teaching strategies helps students to increase their motivation towards the performance, and their feelings of self confidence, and to gain collective experience (16).

Table (3) shows the significance of the differences between the means of the students' degrees in the measured multiple intelligences. The researcher used the L.S.D method to find the significance of these differences. The table shows that multiple intelligences development as a result of the faculty program which is been taught for four years contributed to the development of these intelligences with different degrees. The Bodily – kinesthetic intelligence was the most developed intelligence as the mean of the students' degrees in this intelligence was"30.04 degrees". The researcher attributes this to the fact that the faculty program includes a great number of the kinesthetic practical teaching hours in subjects of games, track and field events, aquatic sports, combating games, exercises &gymnastics and kinesthetic expression. The departments offering these sports use different activities, each of which involves a group of skills. Such skills are practiced in small groups using many teaching methods that are similar to bodily intelligence activities that involve using all parts of the body to express, communicate with others. Cooperative and competitive games, developing the kinesthetic skills of the body, maintaining balance, accuracy in performance, the ability to control the body and move it easily and with equanimity, the sense of time and rhythm during the performance, and the ability to imitate others in copying their movements and behaviors easily. Almost all of these activities develop the bodily – kinesthetic intelligence (20).

The interpersonal intelligence follows the bodily – kinesthetic intelligence in development. It gained a mean of (26.04 degrees). The researcher attributes the development of this intelligence to the fact that the faculty program

helps the student to increase the feeling of self confidence through the practical education in schools, helping her colleagues in the training and performance, participating in the internal and external sport's shows, campaigns, social activities, expressing own opinions and respecting other's opinions, and participating in the students' unions inside and outside the faculty. All this helps the student to feel self – confident and trust her performance, her ability to make a decision, her ability to communicate with others, and the harmonious behavior with groups (21).

The musical – rhythmic intelligence comes at the third position in multiple intelligences development. It gained a mean of (25.11 degrees). The researcher attributes the development of this intelligence to some subjects that are taught in the faculty such as motor rhythm, kinesthetic expression, exercises, and gymnastics. Most of the kinesthetic activities help develop "the musical – rhythmic intelligence" because all kinesthetic performances include rhythms in order to have the skillful performance proper and correct. It can also be attributed to the students' participating in the sport's shows, using different types of music, and using the musical sentences while performing the kinesthetic sentences created and performed by the student. All this is done in small groups of students and helps develop this type of intelligence (22).

The intrapersonal intelligence comes in the fourth position. It gained a mean of (24.96 degrees). The development of this kind of intelligence is attributed to the fact that the students of the faculty are trained in guiding both small and large groups while teaching in various types of schools, leading the sections of their peers to which they were distributed, or in the students' unions, sport notes and assignments and the parties, campaigns and shows organized by the faculty, the conferences and symposiums, participating in the sports clubs and social committees. All these help the students develop their intrapersonal intelligence among the groups (8).

The visual – spatial intelligence, that gained a mean of (24.37 degrees), comes in the fifth position. The researcher sees that this kind of intelligence is developed by designing some simple sport's shows in the practical education lessons in the schools, and by using colors and shapes in designing tools and clothes of these shows. Sometimes images, videotapes, films, and models are used in the shows, or to clarify some kinesthetic skills while teaching them in order to have sense of the place during the performance

The low degree of this intelligence, compared with the previous intelligences, is attributable to the non-existence of geographic and illustrated atlases, illustrated reference books, geographic laboratories, studios, observatories, planetarium, maps, paintings, diagrams, video tapes, and cartoon films. All of these aids, which are not used when teaching the faculty program, can develop the visual – spatial intelligence (26).

After spatial intelligence comes the linguistic intelligence with a mean of (22.36). The gradual decrease in the development of linguistic intelligence is due to the fact that the faculty students do not write articles on the subjects they learn. They never use resources, periodicals, or historical, philosophical, moralistic and comic stories. In addition, students do not study the Arabic language except for a few hours in the first and second years. This does not help developing this kind of intelligence well.

Logical-mathematical intelligence ranked seventh with a mean of (22.24). The gradual decrease in this kind of intelligence resulted from the secondary educational background of most of the faculty students, being students in the literary division which does not teach branches of mathematics. Besides, the faculty program does not include any of these branches, or any source that could develop the logical-mathematical intelligence except in fourth year where they study principles of statistics in the first term and scientific research in the second term. This is not sufficient to develop this kind of intelligence.

At the end of indicator list comes the naturalistic intelligence with a mean of (22.05). The researcher attributes the gradual decrease in the development of this intelligence to lacking the resources that could develop this type of intelligence in the faculty program except in some activities, e.g., association of girl guides and rangers. Only a small number of students

participate in these associations. These findings led to achieving the second hypothesis: there are statistically significant differences between scores of fourth year female students of the faculty in multiple intelligences.

At the end of this discussion, the mental profile of the faculty students takes shape. at the top of it, comes the bodily-kinesthetic intelligence, followed by interpersonal intelligence, musical intelligence, intra-personal intelligence, spatial intelligence, linguistic intelligence, logical-mathematical intelligence and, finally, at the bottom of the profile comes, the naturalistic intelligence.

Conclusions:

In the light of research objectives and hypotheses, research sample and methodology and findings, the researcher concludes the following:

1. The faculty program has a positive effect on developing multiple intelligences.

2. The faculty program differently affects types of multiple intelligences.

3. The faculty program helps draw the faculty students' mental profile beginning with bodily-kinesthetic intelligence and to ending with naturalistic intelligence.

Recommendations:

In the light of the research findings, the researcher recommends the following:

1. To use multiple intelligences measurements on admission to the faculty of students. Thus, the types of strong intelligence and the weaker intelligences can be identified.

2. To take care of individual differences among female students according to tests' results. To use multiple intelligences methods and activities in teaching, so that they match the level of every student to place her into the expected level.

3. To assess students in different ways to match levels of every student.

4. To use multiple intelligences methods and activities in developing suggested methods and activities of the educational process.

5. To assess physical education courses in the light of multiple intelligences theory.

6. To develop the knowledge of teaching staff members and their assisting staff of multiple intelligences to know how to assess strengths and weaknesses of multiple intelligences on students' admission the faculty.

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