

Multiple intelligences among teachers of sport and physical education in high schools.

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Abstract

The purpose of the study is to identify the level of multiple intelligences among teachers of sport and physical education in high schools and which one is more dominant, also to know if there Are any significant differences considering the obtained diploma and for this purpose we used descriptive method On a sample composed of 41 teachers, and for data collection, we used a multiple intelligence inventory, the data was analyzed using SPSS version 21, The results showed: 1- Interpersonal intelligence was the most common type, bodily-kinesthetic intelligence was the second, mathematical intelligence was the third rank. Linguistic intelligence was fourth rank. Existential was fifth rank. Natural intelligence was sixth rank. Personal intelligence was seventh rank. spatial visual intelligence was eighth rank; Musical intelligence was the last.2-the level of multiple intelligences was average among teachers. 3-There are no significant differences between license and master Teachers in the level of multiple intelligences..

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I. Introduction

sport and physical education is a great field which has become a race for a lot of scientists and specialists as the first priority in them researches to make positive results from the process of education and this success won't be accomplished without the contribution of the teacher (boughalia & al, 2020); So the teacher is the pivot of any educational system, on him rests the failure or the success of the educational system (Rajammal, 2016).

That's why he is obliged to have many, varied capabilities and skills that helps him to perform his duties successfully and more important effectively, and intelligence is one of the important abilities to have, thus the teacher must have a considerable level of intelligence, specially physical and sport's teachers because of the nature of the topic and its uniqueness for that it needs more competencies.

Thus physical and sport class is performed in a difficult environment and conditions ,in the other hand intelligence is considered as one of the concepts that had researchers attention since its first appearance (boudjamaa & boukhalfa hamza, 2015), as a result many studies were conducted ,and one of the most recent theories that explained it is Gardner 's theory , Gardner identifies intelligence as competence must entail a set of skills of problem solving enabling the individual to resolve genuine problems or difficulties that he encounters and, when appropriate, to create an effective product and must also entail the potential for finding or creating problems there by laying the groundwork for the acquisition of new knowledge (Gardner, 2011), so he thinks that It is of the utmost importance that we recognize and nurture all of the varied human intelligences, and all of the combinations of intelligences, According to the theory of multiple intelligences, the mind's problem solving capacities are multifaceted, exceeding the traditional view of intelligence as being verbally and mathematically bright (Campbell & Bruce campbell, 1999).

We are all so different largely because we all have different combinations of intelligences (Armstrong, 2009), and he Mentioned 9 types of intelligence:

Linguistic: The capacity to use words effectively, whether orally or in writing. This intelligence includes the ability to manipulate the syntax or structure of language, the phonology or sounds of language, the semantics or meanings of language, and the pragmatic dimensions or practical uses of language.

Logical-mathematical: The capacity to use numbers effectively and to reason well, this intelligence includes sensitivity to logical patterns and relationships, statements and propositions (if-then, cause-effect), functions, and other related abstractions.

Spatial: The ability to perceive the visual-spatial world accurately and to perform transformations upon those perceptions. This intelligence involves sensitivity to color, line, shape, form, space, and the relationships that exist between these elements.

Bodily-kinesthetic: Expertise in using one's whole body to express ideas and feelings and facility in using one's hands to produce or transform things. This intelligence includes specific physical skills such as coordination, balance, dexterity, strength, flexibility, and speed, as well as proprioceptive, tactile, and haptic capacities.

Musical: The capacity to perceive, discriminate, transform, and express musical forms. This intelligence includes sensitivity to the rhythm, pitch or melody, and timbre or tone color of a musical piece.

Interpersonal: The ability to perceive and make distinctions in the moods, intentions, motivations, and feelings of other people. This can include sensitivity to facial expressions, voice, and gestures;

Intrapersonal: Self-knowledge and the ability to act adaptively on the basis of that knowledge. This intelligence includes having an accurate picture of oneself (one's strengths and limitations); awareness of inner moods, intentions, motivations, temperaments, and desires; and the capacity for self-discipline, self-understanding, and self-esteem.

Naturalist: Expertise in the recognition and classification of the numerous species—the flora and fauna—of an individual's environment. This also includes sensitivity to other natural (Armstrong, 2009).

This study seeks to explore the level of MI among teachers of sport. There are many studies try to treat theorie of MI such as Didem Gulcin KEMEC (2016) Aimed to identify and compare the areas of multiple intelligence of School of Physical Education and Sports students according to some parameters, and Sümmani's (2011), his main purpose was to analyze the multiple intelligence levels of academies of physical education and sports students according to some demographic factors, the study of Murat (2015) also tried to explore the possible effects and relations of athletic participation in school sports competitions on MI types of high school female students, and the study of Kürşat Yusuf (2017) The purpose of his study was to compare the multiple intelligences and sport performance of male and female taekwondo students of Turkish universities,

and the study of Burcu Özdemir (2010) Who tried to investigate the 4-to-6-year-old children's tendency of using intelligence types in learning regarding the Multiple Intelligence, Shaikh and others (2016) also tried to study and compare the Multiple Intelligences of girls and boys studying in VII and IX grades .

Although the importance of previous studies and its focus on topics with Direct or indirect link to the subject of the study except that the current study differs from these studies in the knowledge. the importance appears in The lack of the local studies specially in arabic that touched in the research multiple intelligences on sport's field. so we asked three questions:

- What is the most dominant intelligence among teachers?
- What is the level of multiple intelligences among teachers?
- Are there any significant differences between teachers considering the obtained diploma in the level of multiple intelligences?

II. Method and Materials

2.1. Participants

The participants of the study consist of 41 teachers of sport and physical education in high schools, from BATNA city, who worked during 2017-2018 academic year, they were randomly selected from the total population.

2.2. Materials

We used McKenzie's (1999) MI Inventory, the questionnaire includes 90 statements, 10 on each of Gardner's nine intelligences which are: linguistic intelligence, mathematical logical intelligence, spatial visual intelligence, bodily-kinesthetic intelligence, musical intelligence, social intelligence, personal intelligence, natural intelligence, Existential intelligence.

Reliability and validity

Construct Validity:

To achieve the validity of construct for the scale. the Coefficient of correlation was calculated between its sub-dimensions, and the results are in table 1.

Table 1: correlation between dimensions of MI inventory

	bodily- kinesthe tic	Linguist ic	Social	Persona ol	Musical	spatial	Logical	Natural	Existential
on y- ki ne st	1	-,444	-,091	-,175	,435	-,055	,034	,457	,175
Lin guis tic	-,444	1	,451	,260	,107	,462	,414	,244	,347
S o ci al	-,091	,451	1	-,040	-,132	,603*	,061	,348	,040
Pers onal	-,175	,260	-,040	1	,191	,145	-,088	-,267	,077
M u si c i a	,435	,107	-,132	,191	1	,200	-,122	,276	,255
sp ati al	-,055	,462	,603*	,145	,200	1	,424	,356	-,145
Logi cal	,034	,414	,061	-,088	-,122	,424	1	,319	-,118
a t t u r	,457	,244	,348	-,267	,276	,356	,319	1	,501
Ex ist ent ial	,175	,347	,040	,077	,255	-,145	-,118	,501	1

From Table number1: The correlation coefficients between the nine dimensions are weak, because the paragraphs related to each dimension measure something different from what the paragraphs related to other dimensions' measure.

Cronbach's Alpha reliability:

To achieve the reliability for the scale. the Coefficient of Cronbach's Alpha was calculated, and the results are in table2.

Table 2: Cronbach's Alpha reliability for McKenzie's questionnaire and its sections

Intelligence	NUMBER OF ITEMS	Cronbach's Alpha
bodily-kinesthetic	10-1	,790
Linguistic	20-11	,779
Social	30-21	,790
Personal	40-31	,821
Musical	50-41	,774
spatial visual	60-51	,713
mathematical logical	70-61	,725
Natural	80-71	,743
Existential	90-81	,768
Total score	90	,791

The reliability index for the whole questionnaire was 0.791 and all components also showed high indexes between 0.713-0.821. This means that the tool is characterized by high stability.

2.3. Design and Procedure

After viewing literature background, we chose the multiple intelligence's scale, we made sure of its clarity by passing it to judges for evaluation, it

was approved to be given as a questionnaire for an exploratory sample of 14 teachers to calculate the reliability and validity, we kept the number of items as it is 90 item, to be distributed on a sample of 55 teachers, but only counting 41 questionnaires and exclude the rest for not answering some parts.

2.4. Statistical Analysis

The data was analyzed using the Statistical Package for the Social Sciences (SPSS) for Windows (version 21), it was analysed by employing Mean, Standard Deviation, T-test.

III. Results

- What is the most dominant intelligence among teachers?

To determine the most dominant intelligence among a specific sample, Means and Standard Deviation were calculated for each dimension of MI and also the total score.

Table 3 : Means and Standard Deviations of multiple intelligences

Intelligence	N	Mean	Std deviation	Order
bodily-kinesthetic	41	29,7805	2,66000	2
Linguistic	41	27,4634	4,12370	4
Social	41	31,0488	3,60521	1
Personal	41	25,6829	4,35568	7
Musical	41	14,0732	5,84547	9
spatial visual	41	24,5366	5,98372	8
Mathematical	41	29,0976	7,25880	3
Natural	41	25,7805	6,08897	6
Existential	41	26,6341	5,59802	5
total Score	41	234,0976	29,29659	

Multiple intelligences among teachers of sport and physical education in high schools.

the Table3 show that Social intelligence has the highest mean score 31,0488. bodily-kinesthetic intelligence has the second highest mean score 29,7805. Mathematical intelligence has the third rank with 29,0976 mean score. Linguistic intelligence has fourth rank with 27,4634 mean score. Existential has fifth rank with 26,6341 mean score. Natural intelligence has sixth rank with 25,7805 mean score. Personal intelligence has seventh rank with 25,6829 mean score. spatial visual intelligence has eighth rank with 24,5366 mean score, Musical intelligence has the least mean score

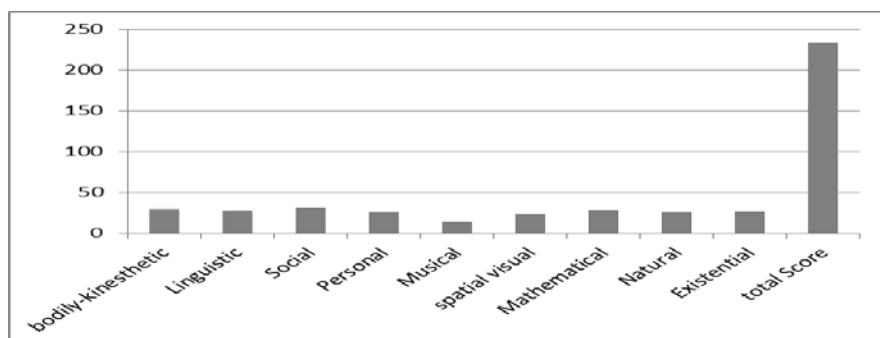


Figure 1: histogram showed Difference in MI types

- **What is the level of multiple intelligences among teachers?**

To determine the degree to which teachers had MI, iterations and percentages of the total score for the scale were calculated.

Table 4: Effectifs and pourcentage of the level of MI

Multiple intelligences	Effectifs		Pourcentage	
	Least	3	7,3	
	Average	38	92,7	
	Hight	00	00	
Total		41	100,0	

From the table 4 we see that the teachers have average level of MI with 92,7% and that is accepted, and the percentage of low level was 7,3%, and as for the high level is 0%.

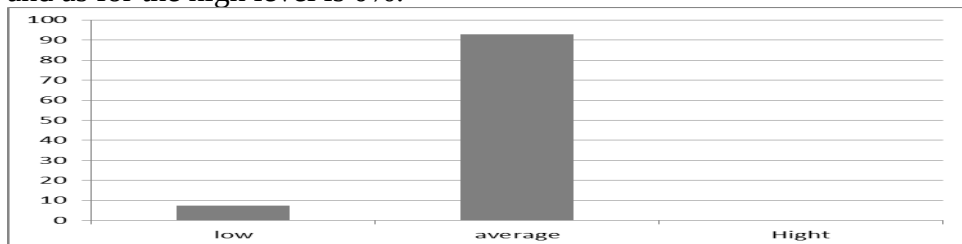


Figure 2: histogram showed level of MI

- **Are there any significant differences between teachers considering the obtained diploma in the level of MI?**

So to know if there are any significant differences we use independent-samples T test as it is being cleared in the table.

Table 5: Difference in MI between groups (diploma)

Dimension	Diploma	N	Mean	Std deviation	T	Sig	Df
bodily-kinesthetic	License	20	30,6500	2,18307	2,131	,039	39
	Master	21	28,9524	2,85440			
Linguistic	License	20	27,6500	3,74552	,279	,781	39
	Master	21	27,2857	4,54030			
Social	License	20	31,0500	3,66312	,002	,998	39
	Master	21	31,0476	3,63973			
Personal	License	20	26,3500	4,62573	,956	,345	39
	Master	21	25,0476	4,09239			
Musical	License	20	14,0500	5,92475	-,024	,981	39
	Master	21	14,0952	5,91527			
spatial visual	License	20	25,1500	6,65128	,636	,529	39
	Master	21	23,9524	5,37100			
Mathematical	License	20	29,8000	7,35277	,600	,552	39
	Master	21	28,4286	7,28403			
Natural	License	20	25,8000	5,89915	,020	,984	39
	Master	21	25,7619	6,41019			
Existential	License	20	27,1500	5,17357	,571	,571	39
	Master	21	26,1429	6,06041			
total Score	License	20	237,6500	27,04241	,754	,456	39
	Master	21	230,7143	31,57870			

From the table 5 we notice that there is no significant difference between groups in the total scores for license ($M=237,6500$, $SD=27,04241$) and master ($M=230,7143$, $SD=31,57870$); $t(39) = 0,754$, $p=0,456 > 0.05$, and also the same for all other dimensions.

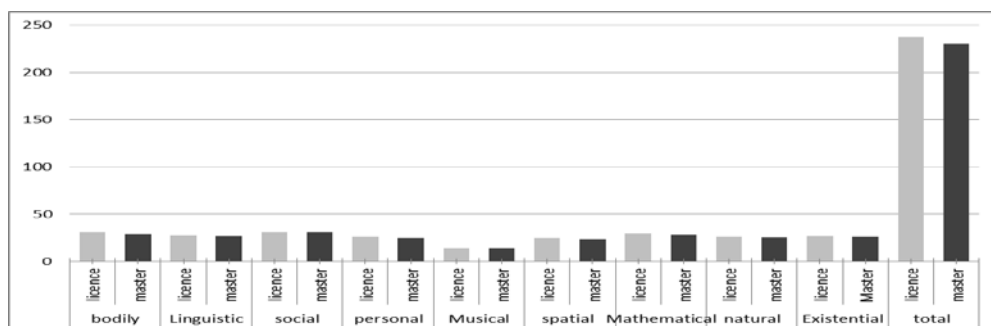


Figure 3: histogram showed Difference in MI between groups

IV. Discussion

- The study aimed at identifying the type of intelligence that is dominant the most, table 3 shows that Means and Standard Deviations of multiple intelligences, we notice that the dominated intelligence among teachers of physical and sport education is social intelligence, which is The ability to perceive and make distinctions in the moods, intentions, motivations, and feelings of other people (Armstrong, 2009). This can include sensitivity to facial expressions, voice, and gestures; And that might be due to the formation of teacher that obliges having a successful and effective social relationships with students to make the process of education concret.

In addition to the nature of Sports specialization as a social one, and it may be also due to the fact that teachers of physical sport have done so much variated sports that give them the ability to have this such of intelligence as a result of practising sport works on developing their social relationships.

In second rank we have Bodily-kinesthetic which is expertise in using one's whole body to express ideas and feelings and facility in using one's hands to produce or transform things. This intelligence includes specific physical skills such as coordination, balance, dexterity, strength, flexibility, and speed, as well as proprioceptive, tactile, and haptic capacities (Armstrong, 2009).

and that might be due to the fact that the teachers of physical education already have done varied sports before, also he needs to perform the moves by himself so students can have the perfect understanding and explanation, And this order goes against the study of Burcu Özdemir (2010) That found both girls and boys predominantly preferred visual-spatial intelligence as their first choice, The third place was for logical intelligence, without doubt the process of educating physical depends and needs a group of varied sciences as medical sciences and other such as pedagogy, and for that the teacher gets a formation and that explains the ranking and the development of this intelligence. and also the study of Shaikh and others (2016) The mean scores indicate that students were found to be high on Bodily Kinesthetic, Interpersonal, Intrapersonal.

-, As we observe from table 4 that shows effectifs and pourcentage of the level of MI, we have medium level of multiple intelligences, and this might be due to teachers formation which does not concerned with multiple intelligences theory, because nowadays the curricula does not care or generalize in direct way in the teacher's formation on multiple intelligences theory.

- The study aimed also to know if there Are any significant differences considering the obtained diploma, As we see from table 5 that shows Difference in MI between groups (diploma), There are no significant differences between the obtained diploma (degree) master or license, and this can be connected to identical curricula followed in master and license formation, adding to it takes two years to obtain master degree and this period is not enough to cause differences between the two groups, And we haven't found any previous studies that considered the obtained diploma (license, master) as far as our knowledge.

V. Conclusion

The theory of multiple intelligences explained intelligence in a new way, by giving each ability in any field, and describing it as a type of intelligence itself, through this study that focused on multiple intelligences for teachers of physical and sport education and exactly detecting the level of multiple intelligences, we found social intelligence is dominant. Also the level of these intelligences was average and comparing it considering obtained diploma, we haven't found any statistical differences, our results Did not agree with any previous studies, and through the results we give some recommendations:

- Make a typical profile for the level and types of intelligences that must be in physical education teachers.
- Taking in consider the level of multiple intelligences in the process of recruitment.
- Giving attention in the next studies to multiple intelligences based on the current study.
- Incorporate the approach of multiple intelligences in the physical and sport classes.

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