# The effect of using multiple intelligences on critical thinking And the performance level of some handball skills

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### **Introduction and research problem:**

The era in which we live is the era of the information flood. It is characterized by rapid and successive changes, as a result of technical and informational development in all its fields. Knowledge is no longer an end in knowledge; Which made there an urgent need to move education from the capable of keeping pace with the outcome of this tremendous development, and the unpredictable future changes that it entails, and situations that require understanding, interpretation, and analysis, and the calendar (22:16).

In view of the great interest in the human being, it was necessary to take into account his intelligence, abilities and thinking, and not to look at human intelligence from the old monolithic view, which considers intelligence to be a unified mental entity. Linguistic, logical, mathematical, spatial, physical, kinesthetic, music, etc. intelligence (35:19).

The theory of multiple intelligences is one of the applied sciences of human intelligence research, which shows its role in the development of education in its various stages. The theory represented a new trend towards intelligence. This concept, which only recognized one form of intelligence remains constant in the individual and believes Gardner argues that the best accompany one's efforts to adapt to the environment every day. He believes that the best way to measure intelligence in the real world is to fight the individual in order to achieve his goals (35:12).

Handball is one of the games that require high effort, superior skill and mental-motor compatibility to perform different skills. This game has many skills that distinguish it from other games, including holding, receiving and passing. Therefore, the researcher saw the importance of multiple intelligences to develop and improve critical thinking among students while learning handball skills (grabbing – receiving- pass).

Since it is not possible to think without knowledge, the meaning of this means that knowledge is the only means of directing the life of the individual in a way that enables the mind to carry out its activity in forming and arranging meanings in a way that enables it to generate new knowledge to carry out its function in producing creative solutions to its problems in light of the fruitful interaction with its surroundings. Hence An important type of thinking comes to mind, which is critical thinking, which is one of the most complex forms of thinking because it is associated with many behaviors such as logic and problem solving and its close connection with abstract thinking and reflective thinking in terms of similarity in many characteristics (15:8).

Perhaps what is new in this interest in critical thinking is that it consists of a group of sub-abilities, which help the learner to correct his own thinking, make him think rationally, analyze what he knows and understand, and control and control his consciousness and control over his intelligence and consciousness. Critical thinking abilities include How do you ask? and when? And what questions do you ask? How do you explain? What methods of analysis do you use? (20:8)

Therefore, the method of teaching that depends on critical thinking is in contrast to the method of teaching that depends on indoctrination, because the latter turns the person into an empty vessel and weakens all creative interaction in it, and the only way to integrate into the group becomes total submission to the prejudices of the tribe, family or companionship, loss of the ability to review preconceived ideas, or produce new ones (34:3)

Through the researcher's work in the field of teaching physical education in the basic education stage, it was found that physical education curricula in its stereotypical form have dominated school physical education, and the neglect of multiple intelligences and critical thinking has become and its effects on students, which are usually considered one of the main goals of physical education in schools, and that there is a constant threat to reduce classes Physical education Although physical education curricula in general include specific goals related to raising multiple intelligences and critical thinking, their achievement depends largely on teachers who develop the lesson plan according to what they think of how to excite students and develop multiple intelligences and critical thinking of the learner.

From the above and to the knowledge of the researcher, the studies did not touch on the effect of using multiple intelligences on critical thinking and the level of performance of some handball skills. This prompted him to prepare a study entitled "The effect of using multiple

intelligences on critical thinking and the level of performance of some handball skills."

# The importance of the current research is evident in the following:

1- Contribute to introducing those in charge of teaching and teaching physical education on how to provoke and improve multiple intelligences and critical thinking using modern methods using multiple intelligences as one of the educational innovations and how to employ and benefit from them in teaching physical education.

### Search objective:

### The research aims to identify the following:

The effect of using a program using multiple intelligences on critical learning thinking and the performance level of some handball skills.

## **Research hypotheses:**

- 1- There are statistically significant differences between the mean of the two measurements (pre- and post-test) of the experimental group in critical thinking and the level of performance of some handball skills in favor of the post-measurement.
- 2- There are statistically significant differences between the mean of the two measurements (before and after) of the control group in critical thinking and the level of performance of some handball skills in favor of the post measurement.
- 3-There are statistically significant differences between the means of the two measurements (the two dimensions) for the experimental and control groups in critical thinking and the level of performance of some long handball skills in favor of the dimensional measurement of the experimental group.

#### **Search terms:**

#### **Intelligence:**

It is multiple capabilities that appear in multiple areas, whether in solving problems or in the ability to modify or change multiple products in a cultural pattern or certain cultural patterns. (2:33)

## **Multiple Intelligences:**

According to "Jaber Abdel Hamid" (2003 AD), the multiple intelligences are the mental skills that can be developed, which Gardner reached, which is represented in linguistic, logical, mathematical, spatial, physical, kinesthetic, musical, social and natural intelligence. (2: 18)

## **Critical thinking:**

- As Abdo defined it: it is a series of activities and mental skills that the human mind performs when exposed to a stimulus that is received by the senses, and then the process of searching for meaning takes place in different situations (8:29).

## **Critical thinking skills:**

A set of mental operations and stimuli that learners use to solve many problems from the beginning of the claim and posing the problem to reach a truthful and accurate result Khawaldeh (19:5)

## **Research Methodology:**

The researcher used the experimental method for its relevance to this research, by using the experimental design with two measurements (before and after) for two groups, one experimental and the other control.

# Research sample and community:

The research community was represented in the sixth grade students of the primary school at Othman Haroun Primary School, 2019-2020, who numbered (120) students. The researcher chose the number (32) students with a percentage of (38.4%) from the research community to represent the basic research sample, and they were divided into two groups, one of them An experimental group used the method of multiple intelligences and its strength was (16) students with a percentage of 19.2%, and the other control group used the traditional learning method and its strength was (16) with a percentage of 19.2% students.

## The average distribution of the research sample:

The researcher made sure of the average distribution of the basic and exploratory research sample of the sixth grade students, who numbered (30) students, in the variables (chronological age - height - weight - critical thinking), as well as some skill variables related to handball, and the torsion coefficient was calculated for all The sample members to ensure that it falls under the moderation curve, as shown in Table (2,1).

## Table (1)

# The arithmetic mean, standard deviation, median, and skew coefficient of the variables

The pooled and control subjects were under investigation. (n = 16)

							•		
Variables m	Alone	experimental group				control group			
	measure ment	average Arithmetic	standard deviation	Mediato r	skew modulus	average Arithmetic	deviation normative	Mediator	skew modulus
age	the year	11.8	0.45	11.6	-0.3	11.3	2.85	11.6	-0.66
Length	cm	130.8	0.63	137	0.29	133.13	0.67	133	0.54
the weight	kg	38	0.86	37.05	-0.03	36.9	0.97	37.1	-0.37
Zigzag run 18m with the ball	a second	5.14	0.46	8.65	-0.91	7.23	0.41	8.6	-0.39
Pass and receive in 30 seconds	Number	8.51	0.21	5.12	0.29	5.08	0.17	5.1	-0.18
Scrolling and receiving on a rectangle	Number	2.16	1.6	2.02	1.76	2.04	0.52	42.6	0.17
Shooting by jumping on a specific target	Number	2.14	1.45	18.7	-0.46	2.23	0.59	2.3	-0.46
critical thinking	Degree	42.57	0.45	42.65	0.67	42.62	0.53	42.3	0.17

It is evident from Table (1) that:

Convolution coefficients for growth rates (age - height - weight) and skill variables under consideration and consideration The critic of the experimental and control groups ranged between (-0.91, 1.76) and was limited to (+3, -3).

Which indicates that it lies within the equinox, where the closer to zero, the more moderate the distribution.

Table (2)
The significance of the differences between the Experimental and control groups for measurements
Tribalism in the variables under investigation (n = 30)

Variables	Alone measurement	experimental group		contro	value of	
		$\mathbf{M}$	р	M	p	't''
age	the year	11.8	0.45	11.3	2.85	0.81
Length	cm	130.8	0.63	133.13	0.65	0.25
the weight	kg	38	0.86	36.9	0.97	0.18
Zigzag run 18m with the ball	a second	5.14	0.21	7.23	0.41	0.31
Pass and receive in 30 seconds	Number	8.51	0.46	5.08	0.17	0.72
Scrolling and receiving on a rectangle	Number	2.16	0.43	2.04	2.54	0.37
Shooting by jumping on a specific target	Number	2.14	0.56	2.23	0.59	0.33
critical thinking	Degree	42.57	0.45	42.62	0.53	0.67

Tabular value of "T" at the level (0.05) = 2.042

It is evident from Table (2) that:

There are no statistically significant differences between the mean scores of the two tribal measurements for the experimental and control groups in the variables under consideration, as the calculated (t) values are less than the tabular (t) value at the level (0.05), which indicates the equivalence of the two groups in those variables.

## **Data collection methods**

The researcher used the following means to collect the data for the research:

#### First, the hardware and tools:

#### The devices and tools are as follows:

- A rheostat for measuring length in centimeters.
- Medical scale to measure weight in kilograms.
- Digital stopwatch to measure the time (to the nearest 1/100th of a second).
- Flexible tape measure for measuring distance in centimeters.
- Ropes and beams-Expert opinion survey form-Critical Thinking Scale:

#### **Second: the tests**

- skill tests

#### Scientific transactions for skill tests:

The researchers conducted the scientific transactions for the skill tests from Saturday 20/10/2019 until Tuesday 22/10/2019.

## **A- Honesty:**

The researchers used the validity of differentiation by the comparative method of the periphery, by applying the test to a group of students from the research community and from outside the basic sample and similar to it, and its strength was (14) twelve students, and they were arranged ascendingly, and the highest and lowest springs were chosen, where the strength of each of them reached (3) ) Three students and the significance of the differences between them was found by the Mann and Tenney laparometric method, and Table (3) shows the result.

Table (3)
The significance of the differences between the highest spring and the lowest spring of skill tests Mann-White's laparometric method (n = 14)

skill tests	Single	spring top		lower spring					Error	
	Measureme nt	sum rank	average rank	sum rank	average rank	u	W	Z	probability	
Pass and receive in 30 seconds	Number	77.00	11	28	4	0.00	28.00	3.191	0.001	
Scrolling and receiving on a rectangle	Number	77.00	11	28	4	0.00	28.00	3.191	0.001	
Run 18m zigzag with the ball	a second	28.00	4	77	11	0.00	28.00	3.200	0.001	
Shooting by jumping at a specific target	Number	28.00	4	77	11	0.00	28.00	3.15	0.001	

It is evident from Table (3) that:

Higher knowledge higher scores higher knowledge higher scores higher knowledge.

#### **b- Stability:**

To calculate the stability of the physical tests, the researcher used the method of applying the test and reapplying it to a sample of (12) twelve students from the research community and from other than the original sample with an interval of (3) three days between the two applications. The correlation coefficients between the first and second applications were calculated to find the stability of these variables and the table. (4) shows the result.

Table (4)
Correlation coefficients between the first and second application of the skill tests in question (n = 28)

skill variables	measruin	first app	olication	secono	correlation	
	g unit	M	р	M	p	coefficient
Pass and receive in 30 seconds	Number	6.49	1.54	7.46	1.43	0.83
Scrolling and receiving on a rectangle	Number	7.01	2.93	7.14	1.51	0.91
Run 18m zigzag with the ball	a second	17.98	3.45	16.59	3.14	0.85
Shooting by jumping at a specific target	Number	0.69	0.98	1.04	0.79	0.82

#### (t) tabular value at the level (0.05) = 0.374

It is evident from the results of Table (4) that:

The correlation coefficients between the first and second applications of the skill tests in question ranged between (0.82, 0.91), which are statistically significant correlation coefficients, which indicates the stability of these variables.

## **Educational program using multiple intelligences:**

# The overall objective of the educational program:

The proposed program aims to teach some handball skills to sixth grade students at Othman Haroun School, who represent the experimental research sample, in addition to developing their critical thinking.

## Foundations of developing the educational program:

- -That the program is commensurate with the abilities of the students, taking into account their individual differences and developing critical thinking.
- -Observing the principle of gradation from easy to difficult in the learning process and distinguished by simplicity and diversification.
- -Creating an interesting environment for learning, which increases students' critical thinking skills for learning.

Taking into account the provision of the necessary capabilities and the appropriate place to implement the educational program.

-Taking into account providing feedback to the student through the performance of skills

### **Suggested course content:**

The researcher conducted a reference survey through the scientific references specialized in handball in order to find out the technical performance of handball skills, as well as the legal rules regulating the performance of this competition, and the researcher set a time plan for implementing the proposed program to learn handball skills, where the content of the educational units was distributed Two educational units per week, bearing in mind that the unit time is (45 minutes).

It was divided into (12 minutes) for warm-up and physical preparation, and a period of time of (30 minutes) for the practical application of the program, and also a period of time of (3 minutes) for the final part, and the implementation of the proposed educational program took four weeks, and the researcher used the proposed educational program (intelligences). Multiple) with the members of the experimental research sample, and the traditional learning method was used with the members of the control sample.

The researcher took into account the following when implementing the proposed educational program using multiple intelligences:

- 1- Taking into account the development of educational steps for handball skills through the method of multiple intelligences
- 2-Taking into account the development of the educational steps gradual from easy to difficult and taking into account the abilities of the students. The researcher presented the content of the proposed educational program.

The researcher presented the content of the proposed educational program to a group of handball experts and teaching methods in the faculties of physical education, in order to explore their views on the validity of the proposed program using multiple intelligences. The researcher must complete it before applying.

#### survey study

The researcher also conducted an exploratory study on the exploratory research sample of (15) students, in order to implement an educational unit from the units of the proposed educational program, in order to find out the suitability of the unit in the educational program using the method of multiple intelligences and its validity for application on the basic sample, as well as discovering what might appear difficulties During the application process, and the results of the application resulted in the appropriateness of the educational unit with the educational program using multiple intelligences, identifying the difficulties and working to overcome them.

## Fifth: Executing the experiment

#### 1- Tribal measurement:

The pre-measurement was carried out on the two research groups in the (skilled tests) under study, from Saturday 4/11/2019 AD to Sunday 5/11/2019

# 2- The researcher took into account the following to implement the experiment:

- A- The field of application (the stadium) should be close to the place where the program is shown (the computer lab) so that the student leaves after watching the application in the shortest possible time.
- B The researcher taught the experimental group on Mondays and Tuesdays of each week, and the control group on Wednesdays and Thursdays throughout the period of implementing the experiment, except for the last week of the experiment. The experimental group was on Saturday and Sunday, and the control group was on Monday and Tuesday.
- C The implementation of the program took (8) eight weeks, with two lessons per week, and each lesson takes two lessons per week, at a rate of (45) minutes per lesson for each of the two groups.
- D The educational technology specialist was hired during the viewing and interaction period to deal with any defect that might occur in the computers inside the school lab.
- E- The experiment was carried out from Monday 6/11/2019 to Tuesday 30/12/2019.
- F- The skill part under study was taught to the students of the control group using the traditional method, and to the students of the experimental group in the program under study.
- G- The remaining parts of the lesson were applied to each of the experimental and control groups (warm-up, physical part) with one content in one teaching method, which is the traditional method.

#### **3-Dimensional measurement:**

After the end of the specified period for implementing the program, the researcher conducted a post-measurement of critical thinking and the skill variables under study for the experimental and control groups, from Wednesday 1/12/2019 to Thursday 2/12/2019. Tribal measurement.

#### 5- Statistical treatments used:

The researchers used the following statistical treatments:

-SMA. -Mediator. -standard deviation. The skew coefficient is the correlation coefficient. - T-test for differences. - Mann - Whitney's laparometric method - the researchers satisfied the level of significance (0.05). The researchers used the SPSS statistical program to find the statistical coefficients

## Secondly, discuss the results

Table (5)
The significance of the differences between the mean scores of the two pre and post measurements for the group Experimental Critical Thinking and Skill Tests (n = 16)

Variables	Average Tribal Measurement	Average dimensional measurement	Average the differences	deviation the differences	T value
Run 18m zigzag with the ball	5.14	9.67	4.35	0.69	27.18
Passing and receiving in 30 seconds	8.51	15.35	6.84	1.05	41.04
Scrolling and receiving on a rectangle	2.16	6.39	4.23	0.65	25.38
Shooting by jumping at a specific target	2.14	6.09	3.95	0.60	23.7
Critical thinking	42.57	75.07	32.51	5.00	20.67

#### (T) tabular value at the level (0.05) = 2.131

It is clear from the results of Table (5) that:

There are statistically significant differences between the mean scores of the pre and post measurements of the experimental group in critical thinking and the skill tests under study and in favor of the post measurement, as the calculated (t) value is greater than the tabular (t) value at the level of significance (0.05).

Which indicates that the use of multiple intelligences has a positive impact on critical thinking and the level of performance of handball skills under research. The researcher attributes that progress that occurred to students of the experimental group in developing critical thinking and skill performance under research to the comprehensiveness, integration and organization of the content of the program prepared in the manner of intelligences in addition to the interesting way to display it.

The method of multiple intelligences is characterized by some characteristics represented in providing full opportunities for learners to work according to different teaching methods through which the learner can learn different skills and information. and despair, as well as making the learning process smooth and easy for learners. (24:2)

The multiple intelligences are the best way to meet the needs of learners with their differences and diversity, by presenting the content of the curriculum in a diverse way, as diversification is the locomotive through which learners reach the skills and information to be learned, where multiple intelligences require positive participation by learners in the processes of learning. Planning, decision-making and evaluation processes (16:12)

This is in agreement with the results of the study of Iman Abdullah (2016), Shaher Abu Shareekh (2011), Awad Amal (2011), Nawal Rajeh (2002), which indicated the importance of using multiple intelligences in teaching to learn and master different aspects of skill and knowledge in sports. different. (1)(4)(7)(17).

With this result, what was stated in the first hypothesis of the research, which states that "there are statistically significant differences between the mean of the two measurements (pre- and post-test) for the experimental under study in favor of the dimensional measurement.

جدول (6) Table (6)

The significance of the differences between the mean scores of the two pre and post measurements for the group Controllers in Critical Thinking and Skill Tests (N = 16)

			,	,	
Variables	Average Tribal	Average dimensional	Average the	deviation the	T value
	Measurement	measurement	differences	differences	
Run 18m zigzag with the bal	7.23	9.07	1.84	0.28	11.04
Pass and receive in 30 seconds	5.08	14.23	9.15	1.40	54.09
Scrolling and receiving on a rectangle	2.04	6.00	3.96	0.60	23.76
Shooting by jumping on a specific targe	2.23	5.09	2.86	0.44	17.16
Critical thinking	42.63	70.08	27.45	4.22	19.56

#### (T) tabular value at the level (0.05) = 2.131

It is clear from the results of Table (6) that:

There are statistically significant differences between the mean scores of the two pre and post measurements for the control group in the skill tests under study and in favor of the post measurement, as the calculated (T) value is greater than the tabular (T) value at the significance level (0.05), which indicates that the traditional method has a positive effect. On handball skills and learn the skills under discussion in the physical education lesson.

The researcher attributes that progress that occurred to the control group to the teacher's explanation and performance of the model for the method of performance to learn the skills under study, and the student may return during the different stages of his learning to receive information without looking for it and to look at the model and then begin to imitate and perform Skills, as the traditional method is based on verbal explanation, model performance, correction of errors by the teacher, practice and repetition on the part of the student, and this undoubtedly provides the novice with a good opportunity to learn, which in turn positively affects learning the skills, but without giving an opportunity to develop critical thinking skills for the learner.

This result is in agreement with the results of the study of Kol Omar Al-Jarajwa (2007), the study of Farida Abdel-Malik (2004), the study of Mustafa Muhammad (2013), the study of Nader Khalil Abu Shaaban (2010). The most important results of those studies indicated that the traditional method has a positive impact on The skill performance of the skills under research and that the presence of the teacher is of great importance in the learning process, as he is responsible for planning, implementing and evaluating the learning process (6)(9)(13)(15).

Thus, the second hypothesis of the research has been achieved, which states that "there are statistically significant differences between the mean scores of the pre and post measurements of the control group in the skill tests under study in favor of the post measurement".

Table (7)
The significance of the differences betweenthe mean scores of the two dimensional measures of the experimental group And the control group in critical thinking and the skill tests under study (n = 32)

Variables	experin gro (n =	up	control (n =	value (t) calculated	
	M	р	M	р	
Run 18m zigzag with the ball	9.67	0.77	9.07	0.73	17.52
Pass and receive in 30 seconds	15.35	1.23	14.23	1.14	18.96
Scrolling and receiving on a rectangle	6.39	0.51	6.00	0.48	16.66
Shooting by jumping on a specific target	6.09	0.49	5.09	0.41	13.47
Critical thinking	75.08	6.00	70.08	5.61	22.39

# (T) tabular value at the level (0.05) = 2.131

It is clear from the results of Table (7) that:

There are statistically significant differences between the mean scores of the two post-measurements for the experimental and control group in developing critical thinking skills and the skills under study and in favor of the experimental group, as the calculated (T) value is greater than the tabular (T) value at the significance level (0.05), which indicates that the use of intelligences It is more positive and effective on developing critical thinking skills and performing the skills under study than the traditional method

The researcher attributes the superiority of the experimental group members over the control group members in developing critical thinking skills and performing the skills in question to the experimental variable represented in multiple intelligences, which contains a number of diverse teaching methods, which are different educational tasks and contain graduated exercises in their degree of difficulty, as well as providing nutrition Back to the learner Through the technical instructions within the educational program, which contributed to arousing the senses of the learners, and the progress of the educational process according to the desire, speed and ability of the learner, which led to the speed of their learning, while the control group used the traditional method, which depends on verbal explanation and performance of the practical model and fixing technical errors through The teacher, and each student has the role of implementation only, which contributed to the superiority of the experimental group over the control group.

The strategy of multiple intelligences is one of the strategies that add to learners various and new educational methods, as well as introduce

techniques to help them focus on the basics of the course, achieve the principle of equal educational opportunities among learners in the education process, and increase the use of critical thinking skills during the educational process, because it is based on Meet the varying needs among learners in skills, which increases the effectiveness and quality of the educational process. (45:12)

The multiple intelligences and diversification of teaching are among the useful educational evidence to confront the individual differences among learners, as well as useful for mastering different performance skills, and also useful for taking into account the needs of talented learners and avoiding waste in the talents of these learners, by working independently according to their preferences and working in pairs at the same time. The basis of common interests, as well as collaborative and competitive working groups. (35:12).

This result is consistent with the results of the study of Fadloof Al-Demerdash (2006), Mona Ayyad (2008), Wafa Al-Khatib (2009), and Majed Al-Deeb (2011), where the results of those studies indicated that the use of multiple intelligences proved to be effective in the educational process.

(10)(14)(18)(11)

Thus, the third hypothesis of the research was achieved, which states that "there are statistically significant differences between the mean scores of the two dimensional measures of the experimental and control groups in critical thinking and the skill tests under study in favor of the experimental group".

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## **Research Summary**

This research aims to identify the differentiated education on motivation and the level of performance of some handball skills for students of the first cycle of basic education in Minya city. (32) Thirty pupils, at a percentage of 38.4% of the original research community, and their number is (120) Students were divided into two equal groups, each of which consisted of (16) fifteen students, one of them was a control and the other was experimental. Abstracts - The traditional method (explanation and model performance) contributed in a positive way to critical thinking and the level of performance of some handball skills under discussion for the control group - Using the method of multiple intelligences It was more effective than the traditional method on critical thinking and the level of performance of some handball skills under discussion, which indicates its effectiveness in the educational process and the learning process.