



## ATTENTIONALITY CONTROL AND ITS RELATIONSHIP TO MEMORY CAPACITY IN ACCURATELY PERFORMING THE SKILL OF RECEIVING THE SERVE IN VOLLEYBALL FOR FEMALE STUDENTS

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### Abstract:

The study aimed to identify the values of attentional control and its relationship to memory capacity in accurately performing the skill of receiving the serve in volleyball for female students. The research hypotheses are that there is a statistically significant relationship between attentional control and the accuracy of performing the skill of receiving the serve in volleyball for female students. There is also a statistically significant relationship between memory capacity and the accuracy of performing the skill of receiving the serve in volleyball for female students. The two researchers used the descriptive approach using the method of correlation relationships on a sample of first-year female students in the College of Physical Education and Sports Sciences for Girls / University of Baghdad, the two researchers conducted a measure of attentional control, a test of memory capacity, and a test of the accuracy of the skill of receiving the serve in a volleyball on the research sample. They used appropriate statistical methods to extract the results, and in light of the results, they reached a number of conclusions, including that attentional control has a role in improving the accuracy of the skill of receiving the serve in volleyball for female students. Attentional control is related to memory capacity, as memory capacity is limited in an individual. When faced with a lot of new information at a specific time, the learner will fail to make appropriate attentional preparations, and thus the learner's attentional control will decrease. In light of the conclusions, the two researchers recommend the need to pay attention to measuring and evaluating the mental abilities represented by (attention and memory) among female students of the College of Physical Education and Sports Sciences, because it contributes to improving the skills aspect of female students.

**Keywords:** Attentionality control, memory capacity, receiving serve, volleyball

### 1- Definition of the research:

#### 1-1- Introduction and significance of the research:

The development in various sports, especially volleyball, is not the result of coincidence, but rather the result of prior planning based on scientific foundations. In addition, mental processes are considered one of the most important and finest levels of human activity because of their effective role in the learning process, and their measurement and evaluation have become more important. Using tests and standards is a primary goal for predicting their future levels, learning basic skills requires the presence of important stages that the learner goes through to reach effective learning, which are the mental processes represented by (sensing, attention, perception, remembering - forgetting), where the student receives stimuli through the senses and upon recognizing these stimuli, perception occurs. It is the second mental process, and after it comes attention,



which requires choosing a stimulus from a group of stimuli, and this decision-making process is called attention. As for remembering, it is considered the third mental process, and it is a mental process for retrieving information from the past related to the desired activity, Therefore, paying attention to these perceptions, maintaining memory of this stimulus, and accurately sequencing its performance. It contributes to obtaining effective performance for the required effectiveness Attention plays an effective and essential role in the educational process for various sports games, such as volleyball, which is considered a very fast game and requires maintaining attention for a short period to perform its skills to the fullest extent. It will help the learner to keep remembering the stages of the skill smoothly without any interference or distraction from external factors in addition Memory capacity is the ability that an individual has to store and retrieve information that he can keep and remember in his mind. Remembering guides us toward the desired task, which stimulates effort and increases perseverance. Maintaining memory of the task plays an important role in motivating and moving the achievement behavior to maintain it. Its continuity, While female students are learning the game of volleyball, especially in the early stages, they need constant attention to correct the body position in all parts of the skill that is learned and perform it correctly and master it. The receiving skill depends on attention and attentional control as it requires isolating all stimuli and directing attention towards the sender and the ball until it is received correctly. Remembering and memory capacity an essential aims in achieving a proficient performance, which contributes greatly to directing attention towards the correct performance to achieve positive results in the accuracy of the skill of receiving the serve in volleyball, The importance of the research is to know the relationship of attentional control and memory capacity to the accuracy of the performance of the skill of receiving the serve in volleyball for female students.

## **1-2- Research problem:**

During the two researchers' follow-up and observation of the student's performance in basic skills, they noticed that there was a weakness in the accuracy of performance in the skill of receiving the serve, despite the continuous practice performance and the efforts made by the sports coach and the learners. The reasons for this are weak attention and attentional control among the learners and continued attention to the parts of the movement while explaining the skill. In addition to distraction while performing exercises and not paying attention to the correct body position, to feedback or to a colleague, not paying attention, and directing the ball in specific places on the court. The two researchers also attribute one of the reasons for this to not maintaining the memory of the technique of the required skill, which leads to a weakness in the accuracy of performing the skill of receiving the serve, which in turn leads to obstructing the stages of learning the skill and the parts of the movement. Failure to perform the skill proficiently, which causes a lack of motivation on the part of learners towards learning this, in turn, may affect the accuracy of the performance of the skill of receiving the serve in volleyball. Therefore, the two researchers decided to conduct a study in an attempt to develop solutions to this problem to clarify the relationship between attentional control and memory capacity with the accuracy of the performance of the skill of receiving the serve in volleyball for female students.

## **1-3-Research objectives:**

- 1- Identifying the values of (attentional control - memory capacity - receiving the serving accuracy) among the research sample.
- 2- Identifying the relationship of attentional control and memory capacity to the accuracy of performing the skill of receiving the serve in volleyball for female students.

## **1-4-Research hypotheses:**

- 1- There is a statistically significant relationship between attentional control and the accuracy of performing the skill of receiving the serve in volleyball for female students.
- 2 There is a statistically significant relationship between memory capacity and the accuracy of performing the skill of receiving the serve in volleyball for female students.



## **1-5 Limitation and limitation of the research:**

The research sample consists of female students of the first stage / College of Physical Education and Sports Sciences for the Girls / University of Baghdad. For the period from (21/11/2023 to 27/2/2024), in the electronic calculator laboratory and the sports hall, in the College of Physical Education and Sports Sciences for Girls / University of Baghdad, the research has no relation to the type of food or hobbies that the students have or the type of their private lives.

## **6- Define terms:**

1- Attentional control: It is the individual's ability to select, focus, direct attention, implement the appropriate response to the task or specific information, and avoid distraction.

(Rothbart, 1998, p, 1915)

2- Working memory capacity: It is the volume of knowledge and information that can be kept in memory in an active state and that is used at the appropriate time. It is characterized by the ability to control attention to keep the information in an active state so that it can be retrieved easily and quickly (Engle, 2002. 223 p).

## **2- Research methodology and field procedures:**

### **2-1 Research methodology:**

The researchers used the descriptive approach in the form of correlation relationships to suit the topic and nature of the problem.

### **2-2 The research population and sample:**

The research population was determined (intentional method), represented by the female students of the first stage in the College of Physical Education and Sports Sciences for Girls - University of Baghdad for the academic year (2023/2024). Their number was (164) female students, divided into (6) sections. The research sample was chosen randomly using a lottery method. It was represented in Section (E), which consisted of (30) female students. The percentage of the sample was (18.29%) of the total population of origin. The sample is considered homogeneous as it is from the same age group and their average height ranges between (150-160) cm. They were chosen by the college (With specific tests, specifications, and measurements within the college admission requirements).

### **2-3: Means, tools, and devices used in research:**

- Arabic and foreign references
- Data collection and emptying form
- Flash (USB 3.0)
- Metal measuring tape with adhesive tape.
- C.D) with discs
- Lenovo laptop calculator
- International Information Network (Internet)
- Legal volleyball court

Lanhua volleyballs, number (10).

### **2-4 Tests and scale used:**

#### **2-4-1 Attentional control scale:**

By reviewing many Arab and foreign references, it was concluded that an attentional control scale is a group of (45) paragraphs, These paragraphs are divided into three fields of the scale, with (15) paragraphs for each field.

**1- (Attentional focus) is expressed in paragraphs (1-15).**

**2 - (Attentional shift) expressed in paragraphs (16-30).**

**3- (Controlling the flexibility of attention) is expressed in paragraphs (31-45).**

**The researchers put five answer alternatives in front of each paragraph:**



- Always applies to me = (5)
- Applies to me often = (4)
- Applies to me sometimes = (3)
- Applies to me rarely = (2)
- Does not apply to me at all = (1)

Respectively because it is appropriate to the age stage of the research sample, therefore:

- The highest degree on the scale is (225).
- With a theoretical average (135).
- The lowest degrees are (45). (Thanaa Abdul-Wadud Abdul-Hafiz Al-Shammari, 2015, 56)

#### 2-4-2 Memory capacity test:

Through reviewing many references, the two researchers concluded the significance of choosing (the memory capacity test) due to its importance and suitability to the title and sample of the research, as (the verbal working memory capacity test) consisted of (30) paragraphs.

- If the student answers the test paragraph correctly, he gets a degree of (1).
- If he does not answer correctly, he gets a zero.

With a theoretical average of (15) degrees,

Example: You are offered a card like this: (7)

Then (2)

Then (4)

Then he says (start)

When the test student says “Begin” (this means that the purpose of the series has been completed)

Write the numbers on your answer sheet in this way:

1 – 7- 2- 4:

It is very important not to write the numbers while they are presented to you, and the answer time for each paragraph is one and a half minutes.

(Ettimathal Khudair Bahr, 2016, p. 77)

#### 2-4-3 Measuring the accuracy of the receiving the serve from below:

**Purpose of the test:** to measure the accuracy of receiving the serve.

(Mohamed Sobhi and Hamdi Abdel Moneim, 1997, pp. 244, 245)

**Tools:** The 3m area of the volleyball court is divided into three equal areas.

- Draw two circles (A - B) on the corners of the volleyball court. The distance between the center of the circle and the sideline is (1.5 m), while the distance between the finish line and its center is (3 m).
- A sign (X) is placed in the opposite half of the (volleyball) court, at a distance of (3m) from the end line and (4.5m) from the sideline.

#### Description of the test procedure:

The test student stands inside a circle (A) facing the net. The coach sends the ball to him while he is in the same place to receive it and then directs it into area no. (1), as well as with the other five balls that are directed to area no. (2), as well as with the other five balls, which are directed to area no. (3) Repeat the same action with the same number of attempts from circle (B).

1- The test student takes (15) attempts from inside the circle marked (A).

And (15) attempts from inside the circle marked (B).

2- In all attempts, he uses the skill of receiving from below with his hands.

3- The attempt in which the ball is sent from the coach to the test student in an incorrect manner or outside the circle in which the test student is standing will be canceled.

All attempts must be in one sequence



- The circle whose sign is (A)
- (5) Attempts from Area No (1)
- (5) Attempts from Area No (2)
- (5) Attempts from Area No (3)

- The circle whose sign is (B)
- (5) Attempts from Area No (1)
- (5) Attempts from Area No (2)
- (5) Attempts from Area No (3)

## **Registration:**

The total points collected by the test student from the (30) attempts given to him (15) from each circle mark (A), according to the following method:

- If the ball falls inside the specified area, the test student is given (3) points.
  - If the ball falls outside the specified area and inside the adjacent area, the test student is given (2) points.
- If the ball falls outside the specified area and inside the field, the test student is given (1) point.
- Except for the above, the student is given a point (zero) for the test.
  - The final degree for the test student is (90) points.

## **2-5 exploratory experience:**

In order to identify the obstacles that may appear when conducting (the Attentionality control test, the memory capacity scale, and the performance of the Measuring the accuracy of the receiving the serve from below test), and to ensure obtaining accurate results, an exploratory experiment was conducted for the tests and scale used in the research, Therefore, the two researchers conducted an exploratory experiment to test attentional control and a scale of memory capacity on (10) female students from the first stage in the computer laboratory at the College of Physical Education and Sports Sciences - University of Baghdad - for Girls, from Division (A), and they were chosen randomly on (20/12/ 2023) on Monday, After that, a test of the accuracy of receiving the serve from below was conducted on the same female students in the sports hall of the College of Physical Education on (30/12/2023), Through the exploratory experiment, the extent to which the members of the research sample understood the test Paragraphs and the scale was identified, About how to fill out a results transcription form to correctly test the accuracy of the receiving the serve, and determine the time taken to implement the scale and the two tests.

## **2-6 scientific foundations for the attentional control scale and the memory capacity test:**

The scientific foundations of the two tests were conducted and the scale was proven (validity - stability - Objectivity).

## **2-7 Main experience:**

The main experiment was conducted through the two tests and the scale, represented by the attentional control scale and the memory capacity test on Wednesday (1/17/2024), in the indoor hall of the College of Physical Education and Sports Sciences for Girls - University of Baghdad. The attentional control scale forms were distributed to the sample members with explanations. The scale instructions also explain how to answer it; sufficient time was given for the answer, which took (10-15 minutes). After completing the answer, a five-minute break was given. Memory capacity test forms were distributed to the same sample, with the test vocabulary also explained and clarified and how to answer it, while sufficient time was given for the answer, which took (25). -20 minutes, after completing the collection of all forms to transcribe the results into special forms for statistical processing. As for the accuracy test of receiving the transmission from below, it was conducted on Tuesday (2/20/2024) on the same sample in the internal hall of the College of Physical Education. And sports sciences for girls / University of Baghdad

## **2-8 Statistical Means:**

- Percentage
- mean
- Standard deviation



– Correlation coefficient (Ali Samoum Al-Fartusi, 2012, pp. 57-89-110).

### 3- Presentation, analysis, and discussion of the results:

#### 3-1 Display and analysis of the results:

**Table (1)**

**It shows the means and standard deviations for the variables under study**

Variables	measuring unit	mean	standard deviation
Attentional control	degree	149,38	9,962
Memory capacity	degree	20,23	7,324
receiving the serve accuracy	degree	18,621	9,321

**Table (2)**

**It shows the significance of individual differences between the means and the hypothetical mean for the measure of memory capacity and attentional control**

Variables	Sample number	mean	hypothetical mean	t calculated	Error level	Statistical significance
Attentional control scale	60	149,38	135	2,364	0,000	Significance
Memory capacity	60	20,23	15	6,342	0,001	Significance

**Table (3)**

**It shows the values of the correlation coefficient between the Scale of memory capacity and attentional control and the skill of receiving the service from below in the research sample**

Variables/degree of receiving the serve	Correlation coefficient values	Error level	Statistical significance
Memory capacity	0,914	0,000	Significance
Attentional control	0,842	0,002	Significance

#### 3-2 discusses the results:

Through the tables above, the results showed that there are average values in the accuracy of performing the skill of receiving the serve with volleyball among the research sample, and through the results it was also shown that the research sample has simple values, which demonstrates a weakness in focusing on the process of attentional control in general and on attention in particular among female students. How to maintain attention to all parts of the movement when explaining the skill and correct body position, the sense of sight is also of great importance in motor control in addition to estimating distances. Studies have indicated agreement among the opinions of scholars in the sports field that reaching high sporting achievements requires that the athlete has In (psychological energy and a perfect mentality), It has been found that the most important characteristic of reaching a good level of performance is that attention has been maintained for as long as possible and the parts of the required skill have been remembered. Attention skills are also considered among



the most important mental skills for successful performance (Hussein Abdel Zahra Abdel Yamaha, 2016, pp. 287-288).

This weakness, in turn, affected the accuracy of the performance of the receiving the serve skill, making it an average level. Therefore, the two researchers find it necessary to pay attention to training in attentional control and its stimuli, as well as increasing the ability to continue remembering and retaining the stages of the movement to reach the good performance that we seek in learners and sufficient knowledge of it, Memory is important for any work we perform, especially sports performance, as achieving good sports performance requires good remembering of the parts of the learned skill and retaining this remembering, which in turn contributes to obtaining perfect performance. Remembering contributes to focusing attention towards the required aim, which is the accuracy of performing the receiving the serve skill, which leads to stimulating and developing achievement behavior and maintaining its continuity and increase among learners (Jarwan, 1999, 381)

In addition, the skill of receiving the serve from below is considered one of the most difficult and accurate skills, when we perform the process of receiving the ball absorbing the force of the strike, and then passing it from the bottom to the top through the forearms of a fellow player or the opposing team to obtain a point, Here the importance of the skill of receiving the serve in volleyball is that in the event of any error committed in receiving the ball, it leads to the loss of a point for the receiving team. Incorrect reception of the ball leads to the occurrence of major errors that the prepared player as well as the team suffers from, and these errors work to prevent him from building A diverse and high-level attack on the net. Mastering technical performance is considered one of the most important aspects of this skill, which requires the player to control and pay attention to the speed, height, and strength of the ball when it reaches the opponent to reach the target area to obtain the best position to pass it. The learner must control attention during the match and all the conditions of the game so that he has a good memory when performing this skill in all the different stages of play because any mistake leads to the loss of a point for the opposing team. (Saad Adnan Al-Safi and Ali Mahdi Hadi Al-Jamali, 2012, p. 31)

It is clear from the previous tables that there is a significant relationship between (attentional control - memory capacity - Accuracy of performance of receiving skill). When female students have a high degree of attentional control, they reach a correct method of performance, in addition to retaining and remembering attention that includes parts of the movement. Anticipating the attacking movements of the opposing team, Therefore, without attention and attentional control, it is difficult for the learner to select what can be remembered and what is important and necessary for the different playing conditions to achieve the best performance. It is also difficult to direct the ball to the prepared player without paying attention to the ball sent by the sending team. We also find that without the capacity to remember the details of the skill and its parts in a sequential manner and its essential role in the team's success, it will be difficult for the team to achieve accuracy in performing the skill of receiving the volleyball serve. In addition, attentional control is more accurate and clear whenever there is memory capacity to remember. All the details of the competitor's skill and motor expectations, through which he identifies and selects the important stimulus from among several stimuli

#### **4- Conclusions and recommendations:**

##### **4-1 Conclusions:**

- 1- The learners have an Average degree of accuracy in performing the skill of receiving the volleyball serve among the research sample.
- 2- Learners have a reasonable degree of attentional control and memory capacity among the research sample.
- 3- Female students' possession of a simple degree of (attentional control and memory capacity) is related to their possession of an average degree of accuracy in performing the skill of receiving the serve in volleyball.



4- Attentional control contributes to improving the accuracy of the skill of receiving the volleyball serve among the research sample.

5- Memory capacity contributes to improving the accuracy of the skill of receiving the volleyball serve among the research sample.

6- Attentional control has a relationship with memory capacity.

#### **4-2 Recommendations:**

1- It is necessary to pay attention to measuring and evaluating the mental skills represented by (attention) among female students in the colleges of physical education and sports sciences because it contributes to improving their skill aspect.

2- It is necessary to pay attention to (measuring, testing, and evaluating the mental abilities) represented by (remembering) among female students for its benefit in achieving the required skill.

3- It is necessary to emphasize the increased use of various exercises for the skill of receiving the serve in volleyball to improve the level of performance among female students.

4- It is necessary to use modern strategies that work to (stimulate attention and memory) among female students to motivate them towards mastering the required skill.

5- It is necessary to benefit from the results of the study on interest in (attention and memory) to achieve positive results in the accuracy of performing the skill of receiving the serve.

6- It is necessary to conduct similar studies on a skill other than the one used in the research.

7- It is necessary to conduct similar studies on a sample of males to compare the results of the two researches.

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