Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 6, 2021, Pages. 757-773
Received 25 April 2021; Accepted 08 May 2021.

The reality of working memory among young players in some clubs in the Middle Euphrates in Taekwondo

Diaa Fadel Abbas [(1)], Prof. Dr. Shaima Ali Khamis [(2)]

[(1)] PhD. Student. Faculty of Physical Education and Sports Sciences / University of Babylon, Iraq.

[(2)] Faculty of Physical Education and Sports Sciences / University of Babylon, Iraq.

deahaaltaee@gmail.com , shaimaa.ali@uobabylon.edu.iq

Abstract

Purpose of this paper is to study aimed to apply the working memory scale to young players in some clubs of the Middle Euphrates in Taekwondo, and to identify the level of working memory they have, and the two researchers adopted the descriptive method in the survey method on a sample of young Taekwondo players for the sports season (2020-2021) of 120 players, Of them (52) players were selected (43,333%) by the random method of the main application sample, and (10) players were selected (8,333%) by the random method of the pilot sample, and a modern specialized scale was adopted for the target sample for measurement, and the procedures were from a pilot trial and a major survey In the research for the period between (1/12/2021) until (3/23/2021), since after applying the scale, the main survey study was conducted on them by applying its paper forms, and the results were processed by Statistical Package for the Social Sciences (SPSS) (V26) to be Conclusions and recommendations that the scale of working memory scale is a specialized measuring tool that is suitable for measuring this type of memory among young players in Taekwondo, and has the conditions of scientific foundations and transactions for accepting measurement tools in sports psychology, and has Young players in Taekwondo are an acceptable level of working memory with a variation at this level among them, and young players in Taekwondo need to improve the processes of retrieval, remembering and real-time processing to support their working memory to meet the requirements of the complex skills

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Received 25 April 2021; Accepted 08 May 2021.

researched, and young players excel in Taekwondo by having the ability to receive real-time information at a speed appropriate to the level of their working memory. In various situations in Taekwondo training and fighting, increased attention must be paid to mental preparation programs, especially what supports increasing the level of working memory in training youth players in Taekwondo, and it is necessary to increase attention to supporting trainers' knowledge about the importance of working memory for young players.

Introduction:

It is widely acknowledged "Working memory is a limited-capacity part of the human memory system, and it combines temporary storage and manipulation of information in what serves the cognition" (Pennington & Bishop, 2009)[(1)], as the term (short-term memory) indicates refers to the process of storing information without tampering with it, and therefore it is part of working memory. Working memory is different from long-term memory, while the latter is a separate part of the memory system, and it has a large storage capacity, and it keeps information relatively more stable. "According to the (multi-component model), working memory includes an (executive controller) that interacts with different stores of separate short-term information, which may be auditory, verbal, or visuospatial". (Alloway, 2011)[(2)] It is also "a set of basic characteristics consisting of attention, focus, activation levels, and experiences, as it is divided into short-term typical spaces and an atypical treatment center where the set of characteristics and components the working memory functions normally." (Ribert, 2019)[(3)]. Individual games with different behavior and level from one player to another, like other games, and this difference needs studies that take into account their privacy, especially what is required by the Taekwondo game, which is one of the individual and combat games and which depends on a strong and fast memory that contains in its locker kinetic programs for each of them with the specific skill required to face different fighting situations to obtain the speed of programming response to stimuli of various forms or types, given that the Taekwondo player is different from the rest of the differential and individual games as well, Which requires activation of the instantaneous working memory, which is a

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link between the short-term memory that provides the player with information about the surroundings and the position of the body during the match, and the long-term memory that contains the motor programs for each complex skill to be called according to the requirements of the situation and the required responses, to be mentally prepared. And from a review of the concept of working memory, it is in fact a (psychological - physiological) process that is a limited-capacity part of the human memory system, which combines temporary temporal storage and merging between information to serve the activation of knowledge according to the requirements of the instantaneous or immediate situation and the circumstances in which the images change. Spatial and auditory directions, and lends importance to this type of memory in this research.

Research problem:

During the researchers' repeated discussions with some coaches of the Middle Euphrates clubs in Taekwondo in training and tournaments during the period of special preparation and competitions, it was found that many phenomena need a field study to describe them by quantitative measurement, including working memory, which calls for the need to reach solutions to this problem to build a measure of the working memory of the player's Young people because it is not possible to judge their level without a measuring tool, to be considered one of the problems that require finding solutions to them in the field of mathematical training for treatment by providing a measurement tool according to the determinants of measurement and evaluation by direct measurement to them. And correct it, so that the observation of this problem is academically supported to address it using scientific methods, while the research problem lies in an attempt by the researchers to answer the following question: What is the reality of the working memory of young players in some clubs of the Middle Euphrates in Taekwondo?

Research objective:

The aim of the research is to applying the working memory scale to young players in some clubs of the Middle Euphrates in Taekwondo, and getting to know their working memory level.

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Research methodology and field procedures:

Research Methodology:

The determinants of the current problem imposed the adoption of a descriptive approach in the survey method, which is defined as "the approach that describes a phenomenon according to a specific research plan that includes describing phenomena, gathering facts and information about them, and evaluating these phenomena in the light of what they should be, and in light of more appropriate criteria, and suggesting steps She should be[(4)].

Community and sample research:

That the researchers observation of the phenomenon discussed in the problem of their research imposed that they abide by the limits of the research community represented by young taekwondo players in (8) clubs in the Middle Euphrates in four Iraqi governorates, and they are officially registered in the records of the Central Federation for the Sports Season (2020-2021), whose number is (120) As following:

- **The main sample:** The main sample (52) players were selected (43,333%) by the random method of the main application sample.

- **The exploratory sample:** The exploratory research sample was (10) players were selected (8,333%).

Measurement and procedures:

The researchers depend on the Diaa Fadel [(5)] scale, the details of which are shown in Table (1) and shown in Appendix (1)

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Table (1) shows the structure of the working memory scale.

Fields of Measuring		Number of paragraphs	Alternatives answers paragraphs	Correction key	Border total marks	Hypothetical mean of the scale
1	Receive (acquisition)	8	It always applies to me,	3	8-24	80
2	Coding	8	It applies to me sometimes,	2	8-24	
3	Perception	8			8-24	
4	Retrieval or remember	8	It never applies to me	1	8-24	
5	Treatment	8			8-24	
Total		40	3	3	40-120	

As the two researchers deliberately experimented with the working memory scale on the exploratory sample, which is a modern and specialized measure for the target sample for the measurement, and it has not been more than six months old and has the foundations and scientific transactions. (52) players, by conducting the main survey study by applying this scale to them using paper forms and direct measurement to them, and according to official administrative letters and documenting the survey procedures, as this survey continued in the specified governorates for the period from (1/12/2021) until (3/23 / 2021), and after each respondent has completed their answer; These paper forms were withdrawn from it, the researchers undertook the following procedures: -

1- Calculating the weight of each paragraph of the alternative chosen by the individual responding with the correction key for the paragraphs.

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2- Collecting the scores of the scale paragraphs to find out the total score obtained by the respondent.

3- Classifying the scores of the fields separately in preparation for treating them statistically.

The researchers verified that the results were processed using the Statistical Package for the Social Sciences (SPSS) version (V26), to process data for each of the percentage values, the arithmetic mean, the standard deviation, and the mean difference between the arithmetic and hypothetical means, and a (t-test) test for one sample.

Results and discussion:

Table (2) shows detailed results for each fields of measuring, where the researchers showed the answers of the members of the applied sample of young players in Taekwondo on the scale of working memory in its total degree.

Table (2) shows the statistical parameters of the working memory scale in comparison with the hypothetical mean of the scale

Name of the Scale	Number of paragraphs	Total score of the scale	Hypothetical Mean	Arithmetic Mean	Standard deviation	Average difference between the two medians	Calculated (t) value	Sig level	Sig type
Working memory	40	120	80	89.9	9.041	9.904	7.9	0.000	Sig

Where: N= (52) , error rate (sig) of (0,000) is less (0,05), A degree of freedom (51), the unit of measure is (degree).

The results of Table (2) show that the arithmetic mean of the working memory scale was greater than the hypothetical mean of the scale, according to the answers of the members of the application sample from the young players in Taekwondo, and that the statistical difference between these two means is indicative of the value of (t-test) for one sample.

In order to know the appearance of the results of the total score of the working memory scale of young players in Taekwondo at this level, and for the researcher to attribute the reasons later for this total result on the scale, below is a presentation of the level of the application sample responses in

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detail for each of the five areas of the scale compared to the hypothetical mean for each of them, and as Table (3) shows it:

Table (3) shows the results of the fields of the working memory scale in comparison with the hypothetical mean for each domain

Fields of Measuring	Number of paragraphs	Total score of the scale	Hypothetical Mean	Arithmetic Mean	Standard deviation	Average difference between the two medians	Calculated (t) value	Sig level	Sig type	**sequence**
Receive (acquisition)	8	24	16	22.19	1.172	6.192	38.094	0.000	Sig	first
Coding	8	24	16	21.5	1.674	5.5	23.685	0.000	Sig	second
Perception	8	24	16	20.58	1.446	4.577	22.819	0.000	Sig	third
Retrieval or remember	8	24	16	12.29	3.31	-3.712	8.087	0.000	Sig	fourth
Treatment	8	24	16	13.35	1.919	-2.654	9.974	0.000	Sig	fifth

Where: N= (52) , error rate (sig) of (0,000) is less (0,05), A degree of freedom (51), the unit of measure is (degree).

It is noted from the results presented in Table (3) that by comparing the arithmetic mean with the hypothetical mean of each field, it becomes clear that the levels of the young players in Taekwondo exceeded the hypothetical mean of these areas except for the field of recall and recall, and the field of instantaneous treatment of the situation that witnessed weakness in the level, meaning that it did not exceed all From their arithmetic mean is the value of its hypothetical mean, as the statistical differences were all significant according to the significance of (t-test) values for one sample between the arithmetic and hypothetical mean for each field, and the results of their levels in the field of reception (acquisition) came first from the rest of the fields in this The scale, and by referring to the results of Table (2), it is

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evident that the young Taekwondo players had an acceptable level of working memory. The details of the results of the fields vary between them according to the different details of the results of the fields for their scale contained in Table (3), which showed that they are more willing to receive information and this activation of the senses is by nature a fact imposed by caution from Sudden or rapid movements of various martial arts games, which require attention and focus on the spatial perception of all parts of the stadium on the one hand, and the opposing player in the fight to anticipate what will happen. There are movements, as well as the nature of complex skills imposes a preparation for the mind of mastering its performance according to the movement paths and the appropriate times to reconcile them with a rapid movement that is not interspersed with the cutting in these paths, as the receipt here is more dependent on the sense of sight than other senses to be attention Towards the spatial image that the player symbolizes in the brain to perceive it and process it later to make the appropriate decision for the required motor response according to the position of the fight by choosing one of the alternatives that represent each of the combined skills.

As, "the sense of sight has a special importance in teaching and training gymnastic skills, through which the movement capacity and the correct understanding of the sequence of skill performance develops, as the eye is the one that receives energy and transforms it into physiological and nervous manifestations[(6)]."Purposeful work." In order to create appropriate conditions and prepare the mind that results from the most difficult athletic performance, the athlete becomes motivated or acquired for many reasons, some of which can be identified or observed by the observer [(7)]. as well as“ the sensory abilities of the most important support for mental processes Which plays a role in imparting meanings to our sense of different mathematical movements and is an important part of the information processing system, i.e. analyzing and understanding the sensory information coming from the surrounding environment [(8)]. It is also not possible to judge the total degree at the level of working memory unless it is dealt with in detail from Through the results of its fields mentioned in Table (3), which show that the field of retrieval and recall, and the field of instantaneous

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handling of the situation did not exceed the acceptable level for each field, and the researcher attributes the emergence of the results of weakness by retrieval and recall to the nature of the high speed imposed by training and fighting for it Taekwondo circuits in general, which do not allow during the performance to meditate on this remembering and retrieval, so that it may be partial to the information so that the player depends on the motor programs more than his reliance on recalling information in real time to be a lack of it when processing it and issuing a decision, and this is the nature of working memory and its momentary action in activating work between memory Long-term and short-term, which calls for the need for mental training for real-time manipulations that serve the player in enabling him to perform complex skills and then win the fight, as "the individual can continue to perform well by using the cognitive stimulation process and compensatory effort and changing the performance rules through the use of information in a manner. Repetitive and renewed at the same time, in addition to using knowledge bases that require less mental effort "[(9)], and" it is important to work on developing the efficiency of mental processes such as attention, perception and remembering, and complementing their roles together to achieve the best skilful competence. "[(10)] Also, "perception can only be achieved by the presence of attention." [(11)], and "the effect of physical exercise on the efficiency of the locomotor system as the nerve signal in the muscle strengthens. It stimulates the movement centres in the cerebral cortex and dampens the emotion centres " [(12)].

Conclusions and recommendations:

Conclusions:

Results obtained in this work allow making some conclusions as follows:

- The working memory scale is a specialized measuring tool that is suitable for measuring this type of memory for young players in Taekwondo, and enjoys the conditions of scientific foundations and transactions for accepting measurement tools in sports psychology.
- Young Taekwondo players have an acceptable level of working memory, and this level varies between them.

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- Young players excel in Taekwondo by having the ability to receive real-time information at a speed of acquisition appropriate to the level of their memory working in different situations by training and fighting in Taekwondo.

Recommendations:

On the basis of the conclusions mentioned here, the following works are suggested:

- Young Taekwondo players need to improve retrieval, remembering and instantaneous processing processes to support their working memory to meet the requirements of the complex skills discussed.
- It is necessary to increase attention to mental preparation programs, especially what supports increasing the level of working memory in training youth players in Taekwondo.
- The necessity of adopting the measure of working memory for youth players in Taekwondo, and training those in charge of measurement through it on the procedures for its application and correction in the clubs of the Middle Euphrates.
- It is necessary to increase the interest in supporting the trainers' knowledge about the importance of working memory for young players.

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Appendix (1) illustrates the Working Memory Scale for Young Taekwondo Players

University of Babylon

College of Physical Education and Sports Sciences

Postgraduate / PhD studies

Dear player: .....

In the sports club: .....

Good greeting:

1- In your hands the working memory scale consists of phrases for each of which have three answers (alternatives), each of which represents the applicability of your opinion about the content of its content.

2- Please do not answer any of the paragraphs statements with more than one option.

3- Please do not neglect the answer to any of the paragraphs.

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4- Your answers are for scientific research purposes only, and they will be strictly confidential.

With my thanks and gratitude for your cooperation in the answer.

1- Field of reception (acquisition):

No.	Paragraphs	It always applies to me	It applies to me sometimes	It never applies to me
1	I feel that my senses are ready to receive information during the fight			
2	I believe that I have the ability to arrange the reception of information from more than one sense of self.			
3	I can distinguish receiving information from different senses.			
4	My mind activated to receive the real-time information expected in the fight.			
5	I prepare my mind to store the real-time information expected in a fight.			
6	I link the reception of my information in the fight to a style of reception similar to training.			
7	I focus my attention on receiving the opponent's visual-spatial information in the fight.			
8	I focus my attention on receiving verbal information from the coach in a match.			

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2- Coding field:

NO.	Paragraphs	It always applies to me	It applies to me sometimes	It never applies to me
1	It makes it easier for me to encode spatial images in the brain.			
2	It is easy for me to encode language as symbols in the brain.			
3	It is easy for me to encode individual competitor characteristics on the field as clustered in a brain diagram.			
4	It is easy for me to encode spatial characteristics of a conflict with a diagram in the brain.			
5	Facilitates to encrypt the storage of information associated with the skill.			
6	I feel my competence by controlling the encoding of information coming from different senses.			

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7	I was able to double-encode the pronunciation with the image on a diagram in the brain.			
8	I can organize the information that I encode in the brain.			

3- Perception field:

NO.	Paragraphs	It always applies to me	It applies to me sometimes	It never applies to me
1	I can activate the visual information I receive with ease.			
2	I can easily activate the verbal information I receive.			
3	I control the perception of information without the cognitive burden of my temporary and long memory in the fight.			
4	I am able to compare the visual information I receive with the temporary and permanent memory stores.			
5	I am able to compare the verbal information I have received with the temporary and permanent memory stores.			

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6	I adjust my pronunciation as I perceive new immediate information.			
7	I control my movement as I perceive new instantaneous information.			
8	Distinguish between the similarity of what I perceive of different immediate information.			

4- field Retrieval or remember:

NO.	Paragraphs	It always applies to me	It applies to me sometimes	It never applies to me
1	I get to understand the resolution required for the different visual situation in the fight.			
2	I understand the resolution required for the different spatial situation in the fight.			
3	I understand the decision required for the coach's verbal directions.			
4	Be able to link real-time body position information to decision issuance to perform a complex skill.			

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5	Perform various tasks by combining units of long-term memory by activating short-term memory.			
6	I am able to solve problems that direct me in combat, activating visual information.			
7	I manage to solve the problems that guide me in the fight, verbal information activates.			
8	Easily relate past experiences to the spatial vehicle skill performance in combat.			