

DOI: <https://doi.org/10.54702/ms.2023.22.1.0006>

Efficiency of cognitive representation of information and its role in the power of cognitive control and the performance of the crushing hitting skill with volleyball

Dania Salman Hassan¹, Nihad Muhammad Alwan²

E-mails: daniasalman@copew.uobaghdad.edu.iq¹, nihad@copew.uobaghdad.edu.iq²

1&2 Physical Education and Sport Sciences College for women, Baghdad University

Received: 29/11/2022, Accepted: 16/12/2022



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

Abstract

The aim of the research is to identify the effect of the degree of cognitive representation and its role in the power of cognitive control and the performance of the skill of crushing hitting with volleyball. The two researchers used the descriptive approach in collecting and analyzing information, and the scale (Haifa Ali Youssef and Suad Muslim Al-Shabo, 2019) was adopted for the cognitive representation of information, as well as the cognitive strength scale (2:11) prepared by the two researchers (Jinan Ghazi and Naglaa Abbas 2020), and the research sample consisted of students of the third stage of the Faculty of Physical Education and Sports Sciences for Girls, and their number was (30) students who were randomly selected by lottery from the divisions (B-D). The two researchers reached several conclusions, the most important of which is that there is a statistically significant correlation between models of cognitive representation and cognitive control, and there is a significant correlation between models of cognitive representation and the skill of crushing beating in the research sample of third-stage female students in the College of Physical Education and Sports Sciences for Girls, and the two researchers recommended: Necessity Paying attention to the cognitive representation of information through paying attention to the cognitive structures of the students while learning the skill of overwhelming multiplication, as it helps to develop sports performance and is necessary Conducting similar studies on different age groups and events

Keywords

Cognitive representation, the power of cognitive control

Introduction:

Due to the cognitive developments, the educational developments, and the convergence of human knowledge greatly, which greatly increased the burden on those in charge of the educational process, which prompted the search for everything new that would develop the critical mentality among students, as teaching based on the transfer of information has become, at the present time, a kind of teaching that does not meet the requirements of the education function, because teaching aims to provide the learner with information without stressing on enabling him to use this information in the reality in which we live, as teaching that depends on the transfer of information;

Certainly, it is that teaching that is far from achieving the goals of learning needs. "That is why her task became difficult as a result of a lot of criticism, especially with regard to the quality of education and its outputs, and the low level of achievement." (6)

When dealing with the process of cognitive representation, it is necessary to talk about the cognitive structure, as they are two sides of the same coin, as the cognitive structure represents the product of the representation process and its images that were formed by various mental processors of the information represented, and learning has a close relationship with all mental processes. Learning often requires the learner to observe attention and imagination, thinking and

remembering, one of the reasons that impede learning as required is the weak efficiency of cognitive representation, as it is difficult for the learner to link the new information with the content he has in his cognitive structure, and this leads to the difficulty of drawing relationships between the new and previous information, and then his employment of that information is inappropriate, so his information processing is weak.

This is confirmed by the literature. Al-Zayyat (1995) indicated that the weakness of individuals in the ability to process and process information may lead to superficial knowledge representation of information on their part.

The difficulty of assimilating, relieving, retaining, retrieving and employing them effectively (4).

The need for the educational environment imposes taking into account the individual differences among the learners because of the students' differences among them in the levels of information storage (13), processing and retrieval. And the learner has the power of cognitive control that helps in receiving the most amount of information. (2)

The game of volleyball is one of the popular and important games that require speed, sample of the research was 30 students. The two researchers adopted the researchers' scale (Haifa Ali Youssef and Suad Muslim Al-Shabo, 2019) which consists of three models: the grid model, the diffuse activation model, and the characteristics comparison model) where each model includes (10) paragraphs and in front of each paragraph there are three alternatives (applies = 3, applies to some extent = 2 does not apply = 1) and the subject has to choose an alternative that applies to it and the degree ranges on the overall scale between (30-90), a high score indicates the

attention, thinking and focus during the game, and it is based on a basic rule (14), which is the correct performance of skills and learning them well, including the skill of crushing hitting, as it is one of the offensive and defensive skills that need to make a lot of effort and practice in order to master it. In order to reach a better level of learning, through the aforementioned (15), a problem lies in the research and investigation of the mental processes that help students to be able to properly deal with skills and increase their knowledge structure in volleyball skills, and in order to raise the skill and knowledge level of learners and measure their knowledge and understanding and knowing their awareness in understanding the skills and increasing the effectiveness of their achievement, so the two researchers decided to study the efficiency of cognitive representation of information and its role in the power of cognitive control and the performance of the crushing skill of volleyball. Identifying the relationship between models of cognitive representation and cognitive control in the research sample Identifying the relationship between models of cognitive representation and the crushing skill of the research sample.

Procedure method:

In line with the achievement of the objectives, the two researchers chose the descriptive approach using the correlational studies method, which is defined as "research that seeks to try to determine the relationship between two or more measurable variables." (9) The two researchers identified the research community by the intentional method, and they are the third-stage students in the College of Physical Education and Sports Sciences for Girls, who numbered 34 students, and the

time it takes to answer and accordingly the time is fixed (13) minutes.

An exploratory experiment was conducted on the scale sample, numbering (4) on Thursday, 18-1-2022, to find out the suitability of the scale for the sample level and what is the time it takes to answer, and accordingly the time was fixed at (10) minutes. The two researchers supervised, with the help of the assistant work team, the procedures of the exploratory experiment, which it was applied to a sample of female students (the third stage - College of Physical Education and Sports Sciences for Girls) who did not participate in the main experiment, and their number reached (4) students, on Thursday 18-1-2022, in order to identify the most important difficulties that may accompany the field research procedures. The two researchers conducted the cognitive representation scale tests on Monday 22-2-2022 and the cognitive control scale test with the overwhelming multiplication skill test on Tuesday 23-2-2022.

Results:

use of cognitive representation models with a high degree.

2-4-2 Determining the measure of the power of cognitive control, the researchers adopted the scale (Jinan Ghazi 2020) with one dimension that contains 26 items with five alternatives graded with the respondent (it happens very often, it happens a lot, it happens sometimes, it rarely happens, it never happens) and it is corrected according to Likert method with weights (5-4-3-2-1) in the positive direction and with a total degree ranging from (26-130) degrees with a hypothetical mean of 78, which is one of the paper and pen scales, it can be applied individually or collectively to the students. The higher the score of the test student in this scale, it gives an indication of the increase in his cognitive control.

Tests approved by the research

Test the accuracy of the crushing straight multiplication (10) An exploratory experiment was conducted on the sample of the scale, which numbered (4) on Wednesday 17-1-2022 (to find out the suitability of the scale for the level of the sample and what is the

Table (1)

shows the arithmetic mean, standard deviations, and torsion coefficient values for the researched variables in the research sample

Variables	Arthmatal mean	Standered deviation	Median	Coefficient of torsion	distribution
Cognitive representation	84.56	5.227	84	0.321	moderate
Cognitive control	87.12	7.361	80	0.097	moderate
Smashing skill	5.12	5	1.482	0.242	moderate

Table (2)

shows the arithmetic mean, standard deviations, and the value of t calculated between the arithmetic mean, standard deviation, and hypothetical mean of the researched variables in the research sample

Variables	Arthmatical mean	Standered deviation	hypothetic al mean	T value	error level	Statistical significance
Cognitive representation	72.56	5.227	60	13.165	0.001	Sign
Cognitive control	87.12	7.361	78	12.559	0.000	Sign

* Sign. Below significance level ≤ 0.05 and below 29 degrees of freedom

Discussion:

It is clear from Table (2) that the research sample has the ability to control the knowledge because the arithmetic mean of (87.12) is higher than the value of the hypothetical mean (78). It was formed by various mental processors of the information that was represented (5), and it helped to answer questions and retrieve from memory. In order to achieve meaningful learning and increase the level of effectiveness of the

mental processing of information, this is done by employing multiple cognitive mental processes in reasonable times that contribute to facilitating the task of storing, transferring and integrating this knowledge into the learner's cognitive structures. (7). 3-2 Viewing and analyzing the results of correlations, contribution rates, and standard errors to estimate the results of cognitive representation in the researched variables.

Table (3)

Shows the results of the simple correlation coefficient values

Variables		correlation coefficient	Error level	Significant
Cognitive representation	Cognitive control	0.697	0.006	Sign
	Smashing	0.673	0.002	Sign

It can be seen from Table (3) that there is a statistically significant correlation between cognitive representation and cognitive control, as the correlation coefficient reached (0.697), and the correlation coefficient between cognitive representation and the crushing skill reached (0.673). Cognitive representation in the process of transforming different experiences and stimuli (the semantics of symbolic formulations such as words, symbols, and concepts) and (the semantics of

formal formulations such as images, shapes, and drawings) into meanings, ideas, and mental perceptions that can be encoded, absorbed, and inhabited in an organized manner to become part of the permanent cognitive structure of the individual in the long-term memory and its tools cognitive in the continuous interaction with the world around him (3). This is confirmed by Huda Badawi in the use of various means to develop the educational process for female students

and has an important impact and role in skillful performance (1) (14)

Where the information is reorganized and represented in a way in which the information becomes ready for retrieval at the time of need, the interpretation of the required tasks is based on the internal self-cognitive structure and on the close influence of the task environment (4-11), and from this it can be understood that the power of cognitive control is a distinctive feature of the learning site that pushes the learner to a situational state to practice Different types of cognitive activities and depends on each (8) of his environment represented in the location and cognitive structures (12)

Conclusions:

1- The results showed that there is a statistically significant correlation between models of cognitive representation and cognitive control among third-stage female students in the College of Physical Education and Sports Sciences for Girls.

2- The results showed that there is a statistically significant correlation between cognitive representation models and the crushing skill of the research sample.

References:

1- Huda Badawi, H. N. (2020). The effect of using multimedia in learning the skill of passing from the bottom of volleyball. *Modern Sport*, 19(3), 0178. <https://doi.org/10.54702/msj.2020.19.3.0178>

2- Najla Abbas, j .G. (2021), The impact of the question network strategy in accordance with mental capacity in the strength of cognitive control in the subject of teaching methods of sports education for undergraduate students. *Modern Sport*, 20(2), 0001. <https://doi.org/10.54702/msj.2021.20.2.0001>

3- Fathi AlZayyat. (2006). *Cognitive Foundations for Mental Cognitive Formation and Information Processing*, 2nd Edition,

Universities Publishing House, Cairo, Egypt.P:227

4- Fathi Al-Zayyat. (1995). *Cognitive Foundations for Mental Formation and Information Processing*, Cognitive Psychology Series, Dar Al-Wafaa, Mansoura - Egypt.p:29

5- Alaa Ahmed Abdel Wahed. (2012). the effectiveness of teaching high-ranking thinking skills in the achievement of biology, the adequacy of cognitive representation, and the development of critical thinking among fourth-grade female students, unpublished doctoral thesis, College of Education - Ibn Al-Haytham, University of Baghdad, Baghdad, Iraq P:43

6- Saad Ali Zayer and others. (2014). *The Contemporary Educational Encyclopedia*, Part 1, Nour Al-Hassan Library, Baghdad.p:43

7-Walmsley B Partner. (2003). ship-centered learning the Case for pedagogical balance in technology education. *Journal of Technology Education* 14 (2). P:254

8- Youssef and others Qatami. (2010). *educational psychology*, 1st edition, Dar Wael, Amman, Jordan. P:56

9- Muhammad Hassan Allawi and Osama Kamel Ratib. (2017). *Contemporary Trends in Scientific Research for Physical Education and Sports Sciences*: Cairo, Arab Thought House. P:135

10- Marwan Abd al-Majid Ibrahim. (1994). *Scientific Encyclopedia of Volleyball*: (Baghdad, Central Printing Press) p:312

11- Safa Abdul-kareem Sadiq & Najlaa Abbas Nseif. (2022). The relationship of three-dimensional intelligence to cognitive achievements in the subject of teaching methods. *Modern Sport*, 21(4), 0001. <https://doi.org/10.54702/ms.2022.21.4.0001>

12- Hind Ubaid Abdul-salam, & Huda Abdul-sameea. (2022). The relationship of totalitarian thinking to learn to perform the skills of preparation and receive the transmission with volleyball. *Modern Sport*,

21(4), 0113.
<https://doi.org/10.54702/ms.2022.21.4.0113>

13- Mawahib Hamid T.A. (2020). Information Processing and its relation to the performance of scrolling skill from the top and bottom of the volley ball to the students, Modern Sport,19(1).p:127
<https://doi.org/10.54702/msj.2020.19.1.0127>

14- Intisar Awaid Ali h. i. h. (2020). The effect of mixing the strategies of mental and

cognitive maps on the performance and accuracy of the volleyball crushing skill. Modern sport, 19(4), 0078

<https://doi.org/10.54702/msj.2020.19.4.0078>

15- Donia Asaad and Naima Khalaf (2020). Cognitive skill attainment and its relationship to the skill of crushing volleyball among students of the fourth stage of the College of Physical Education and Sports Sciences for Girls. Modern Sport 19(4), 0147.
<https://doi.org/10.54702/msj.2020.19.4.014>

كفاءة التمثيل المعرفي للمعلومات ودوره في قوة السيطرة المعرفية واداء مهاره الضرب الساحق بالكره الطائره دائنة سلمان حسن ، نهاد محمد علوان كلية التربية البدنية وعلوم الرياضة للبنات / جامعة بغداد

هدف البحث الى التعرف على تأثير درجة التمثيل المعرفي ودوره في قوة السيطرة المعرفية واداء مهاره الضرب الساحق بالكره الطائره، اذ استخدمت الباحثتان المنهج الوصفي في جمع وتحليل المعلومات وتم اعتماد مقياس (هيفاء علي يوسف وسعاد مسلم الشبو،2019) للتمثيل المعرفي للمعلومات وكذلك مقياس قوة السيطرة المعرفية (11:2) المعدمن قبل الباحثتان جنان غازي ونجلاءعباس (2020) ، وتكونت عينة البحث من طالبات المرحلة الثالثة لكلية التربية البدنية وعلوم الرياضة للبنات وكان عددهم (30) طالبة تم اختيارهم بالطريقة العشوائية عن طريق القرعة من شعبيتي (ب-د) ، توصلت الباحثتان الى عدة استنتاجات اهمها ، هناك علاقة ارتباط ذات دلالة احصائية معنوية بين نماذج التمثيل المعرفي والسيطرة المعرفية وهناك علاقة ارتباط معنوية بين نماذج التمثيل المعرفي ومهاره الضرب الساحق لدى عينة البحث لدى طالبات المرحلة الثالثة في كلية التربية البدنية وعلوم الرياضة للبنات ، واوصت الباحثتان :بضروره الاهتمام بالتمثيل المعرفي للمعلومات من خلال الاهتمام بالبنى المعرفية لدى الطالبات اثناء تعلم مهاره الضرب الساحق فهو يساعد على تطوير الاداء الرياضي وضروره اجراء دراسات مشابهه على فئات عمرية مختلف وفعاليات مختلفة اخرى

التمثيل المعرفي، قوة السيطرة المعرفية

الكلمات المفتاحية