

# The influence of the combination of mental and cognitive maps strategies in learning the performance and accuracy of spike volleyball

<sup>1</sup>Hanan Taher Hasan, <sup>2</sup>Entissar Owaied Ali

## **Abstract**

*The study aimed at preparing an educational curriculum by employing the mixing of the strategies of mental and cognitive maps and identifying its effect in learning the performance of the skill of spike with volleyball and its accuracy among fifth grade students. The two researchers assumed: The application of mixing of the strategies of mental and cognitive maps has a positive role in learning to perform the performance of spike skill With volleyball and its accuracy among fifth-grade students, preparation. The two researchers adopted the experimental approach to designing the experimental groups and controlling (51) students deliberately selected at a rate of (55.914%) from Al-Mustansiriya prep in Salah Al-Din Governorate for the academic year (2019-2020).*

*The approved tests were the skills performance tests For the skill of overwhelming multiplication and accuracy after photographing it before and after and assessing it, as they applied the learners in the experimental group by (4) educational units according to the weekly lessons schedule, (3) were devoted to learning performance and (1) to learn accuracy, as concepts that mix the two strategies were employed in flexes measuring ( 2 x 3) m is presented with the application of educational exercises to activate the role of female learners in the lesson according to the specifics and steps mentioned and after completing the experiment according to the As mentioned in the experimental design, the researcher verified the results with the Social Statistical Pouch System (SPSS-V26) to make the conclusions and applications that the application of blending the strategies of mental and cognitive maps helps in improving the learning of the performance of the overwhelming knocking skill and accuracy of students in the fifth preparatory grade, and they excel at improving their learning of their performance and accuracy For educated students in the methods used in the lesson of physical education, attention must be paid to adopting practical applications to mix educational strategies that are concerned with the knowledge structure and further strengthening the link between the performance experiences of spike skill and information accuracy in the main sections of the physical education lesson, and it is necessary to pay attention to the availability of mixes Mental and cognitive mapping strategies in volleyball halls in middle schools.*

**Keywords:** *Mental, cognitive, maps strategies, performance and accuracy.*

---

<sup>1</sup> University of Baghdad / College of Physical Education and Sports Science for Girls/Iraq.

<sup>2</sup> University of Baghdad / College of Physical Education and Sports Science for Girls/Iraq.

## **I. Introduction**

Learning strategies are the behaviors and ideas that the learner uses during learning that aim and affect the performance process that the learner performs, as Mayer defined them as learner behaviors that aim to influence how the learner processes information processing.<sup>1</sup> The soldier's wish believes that "the strategy of cognitive maps derives in its content on the theory of verbal learning in which the student's cognitive structure is seen as a hierarchical form in which the most general, comprehensive concepts and generalizations are abstracted and abstract at the top of the pyramid, followed by The less general, less universal, and most perceptible concepts and principles at the following levels are more qualitative and less comprehensive."<sup>2</sup> Mona Mahmoud notes that "the mental map is the means by which the individual's cognitive environments are expressed through their components and the relationships that relate to those components are based on experience The previous learner stimulates the mind and mind to be cognitively active, as mental maps serve as a tool that makes thinking more organizational, in addition to being one of the easiest ways to enter information into the brain and from Then retrieve this stored information as it is an effective, creative way to take notes and what can be prepared from visual charts of the concepts, ideas and relationships between them, which undoubtedly differs in the cognitive concepts of what mental absurdities are, where some believe that mental maps have several names."<sup>3</sup> It indicates pointed out that "it is possible for the maps that teachers use in theoretical and applied lessons to make learners more active in receiving information and processing information faster in the brain and in selecting desired responses, if their information is appropriate to their level of awareness and is linked to a base of their previous information, for these maps have two basic functions: Activate the interaction of knowledge structure information and provide the learner with new information in a manner that is easy to receive and understand, which calls for more enabling the learner to improve attentive control to support mental processes, the most important of which is attention and correct focus."<sup>4</sup> Muhammad and Nada states that "mapping strategies help increase the ability to Concentration and information retrieval, optimal use of the brain, finding a relationship between variables and linking them, and finding solutions For problems faster and easier."<sup>5</sup>overwhelming strikes are one of the main and important means to score points and their use is often from the third touch of the team.<sup>6</sup> With the aim of this study to prepare an educational curriculum by employing the mixture of mental and cognitive mapping strategies and learning about its effect in learning The performance of the overwhelming skill of volleyball and its accuracy among fifth-graders students preparation, as the two researchers assumed: The application of mixing strategies of mental and cognitive maps has a positive role in learning to perform the performance of spike with volleyball and its accuracy among fifth-grade students.

## **II. Research Methodology**

In light of the data of the problem of this study, the two researchers adopted the experimental research method, which is defined as "the approach in which we treat and control an independent variable to see its effect on a dependent variable, noting the resulting changes and doing their interpretation, whether the experiment included an independent variable and a dependent variable or more than an independent variable One or more independent variables."<sup>7</sup> The experimental design and the two experimental and control groups with tight adjustment were chosen with pre- and post-tests.

### **Community and research sample**

The research community is determined by fifth-year middle school students in Al-Mustansiriya Preparatory School for Girls within the administrative formations of the Salah al-Din Education Directorate, who are continuing on a regular basis for the academic year (2019/2020), whose number is (51) students distributed in their nature to (3) divisions (literary, biological, applied), and two divisions were chosen. Of them, randomly, to form the two experimental groups (26) students in the experimental group, and (25) in the control group, after excluding them affected by the exotic variables, so that the total number of the sample represents what percentage (55.914%) of their community.

### **Measuring devices for tests and research procedures**

The approved tests were the skill performance tests for spike skill (13) and its accuracy (1) (Appendix 1) after being photographed before and after and evaluated by (3) volleyball residents of (10) degrees according to the performance evaluation form for the three skill departments, as they applied the learners in The experimental group by (4) educational units according to the weekly lessons schedule, 3 of which were devoted to learning performance and (1) to learn accuracy, as the concepts of mixing the two strategies were employed in flexi sizes of (2 × 3) m, presented with the application of educational exercises to activate the role of learners in Lesson and according to the determinants and steps mentioned and after completing the experiment according to the specifications of the mentioned experimental design, the researcher has verified the results with the system of social statistics bag (SPSS) version (V26), (statistical package for social sciences), to calculate each of the percentage values, and the Levine test ) For homogeneity of variance, mean, standard deviation, t-test for correlated samples, and t-test for non-correlated samples.

### **Volleyball skill performance test<sup>8</sup>**

The goal of the test: Evaluating the technical performance (tactic) of spike skill through the three sections of the skill (preparatory, president, and final).

The equipment used: legal volleyball court, legal volley balls (3), calendar form.

Performance specifications: The laboratory performs spike from center (4) so that the teacher or one of the assisting team members prepares her ball from center (3), as the laboratory performs spike skill in an attempt to drop the ball into the opposite field.

Performance requirement: Each tested student has 3 consecutive attempts.

- The student gets a test (zero) in the event that the ball touches the net and falls inside the field (the student's court is tested) or in the event of an overwhelming beating in an un agreed manner.

Registration :Three evaluators evaluate the three attempts of each laboratory student and are awarded three grades for each evaluator, knowing that the final evaluation score for each attempt is (10) grades distributed over the three skill sections which are (3) grades for the preparatory section, and (5) grades for the main department, and (2) Two grades for the final section. Then the best score is chosen for each rectifier and by extracting the mean of the best three degrees.

### Volleyball spike accuracy test<sup>9</sup>

Test objective: To measure the skill of overwhelming beating in the diagonal direction and the straight direction.

Tools: (10) volleyball, volleyball court, and two positions placed in a planned area measuring (3 x 3), Figure (2).

Performance specifications: spike from center (4), preparation is by the instructor from center (3), and the tested student must perform (5 overwhelming strikes towards the diagonal direction) the salary in the center (5). And (5 landslides towards the straight direction) the salary in the center (1), taking into account taking a break between one attempt and another.

Registration :

- (4) points for each correct spike hit in which the ball falls on the rank.
- (3) points for each correct spike hit in which the ball falls in the planned area.
- (2) points for each correct overwhelming hit in one of regions (A, B).
- Great degree (40).
- Unit of measure (degree).

### III. Results and discussion

**Table 1.** Shows the results of the pre-test between the two research groups

| Tests       | Levin's value | Significant value | Experimental group |       |       | Control group |      |       | (t) Calculate | Significant value | Type of significance |
|-------------|---------------|-------------------|--------------------|-------|-------|---------------|------|-------|---------------|-------------------|----------------------|
|             |               |                   | N                  | Mean  | SD    | N             | Mean | SD    |               |                   |                      |
| Performance | 1.697         | 0.199             | 26                 | 1.58  | 0.578 | 26            | 1.56 | 0.712 | 0.093         | 0.926             | No sig.              |
| Accuracy    | 1.221         | 0.274             | 25                 | 14.54 | 1.749 | 25            | 14.2 | 2.102 | 0.626         | 0.534             | No sig.              |

The degree of freedom (n -2) = 51 and the calculated significance level (0.05) (v) are not significant if the degree (Sig) is > (0.05)

**Table 2.** Shows the statistical parameters of the results of the (t) test for the correlated samples for each of the two research groups in the pre and posttests

| Tests | Group | Pretest |    | Posttest |    | Mean diff. | SD diff. | (t) Calculate | Significant value | Type of significance |
|-------|-------|---------|----|----------|----|------------|----------|---------------|-------------------|----------------------|
|       |       | Mean    | SD | Mean     | SD |            |          |               |                   |                      |

|             |              |       |       |       |       |        |       |        |       |      |
|-------------|--------------|-------|-------|-------|-------|--------|-------|--------|-------|------|
| Performance | Experimental | 1.58  | 0.578 | 7.23  | 0.514 | 5.654  | 0.629 | 45.848 | 0.000 | Sig. |
|             | Control      | 1.56  | 0.712 | 5.32  | 0.9   | 3.76   | 1.165 | 16.141 | 0.000 | Sig. |
| Accuracy    | Experimental | 14.54 | 1.749 | 27.96 | 0.824 | 13.423 | 1.858 | 36.829 | 0.000 | Sig. |
|             | Control      | 14.2  | 2.102 | 21.8  | 2.273 | 7.44   | 2.888 | 12.881 | 0.000 | Sig. |

The degree of freedom (n - 1) for each group is a level of significance (0.05) (v) calculated as a function if the degree of (Sig) <(0.05)

**Table 3.** Shows the results of the two posttests between the two research groups

| Tests       | Experimental group |       |       | Control group |      |       | (t)<br>Calculate | Significant<br>value | Type of<br>significance |
|-------------|--------------------|-------|-------|---------------|------|-------|------------------|----------------------|-------------------------|
|             | N                  | Mean  | SD    | N             | Mean | SD    |                  |                      |                         |
| Performance | 26                 | 7.23  | 0.514 | 26            | 5.32 | 0.9   | 9.355            | 0.000                | Sig.                    |
| Accuracy    | 25                 | 27.96 | 0.824 | 25            | 21.8 | 2.273 | 12.969           | 0.000                | Sig.                    |

The degree of freedom (n-2) = 51 and the level of significance (0.05) (v) calculated is a function if the degree of (Sig) <(0.05)

The results of the pre and posttests in Table (2) show the clear improvement of each of the learners of the two groups to learn the performance of the overwhelming multiplication skill and its accuracy, and the results of the post-test between the two groups in Table (3) show that the experimental group learners outperformed the improvement of skill learning, and the researchers attribute the appearance of these results To the role of mixing the mental and cognitive maps strategies that the mental and cognitive maps flexes designed by the two researchers helped in preparing a methodology based on observing the privacy of the learners that contain knowledge information that applies with the kinetic programs on how to perform the skill and its accuracy, as the accuracy of choosing its place during the applied performance of the learners was to provide a source of nutrition Corrective review, or in a more accurate sense,<sup>10</sup> helped to activate the comparison system in internal kinematic control and not to activate the activated learner in the movement or the activation of participation in the lesson, as the two researchers deliberately prepared it to have an activating role for the senses and enriching the knowledge of the cognitive structure to go side by side activating the mental processes that are issued Instructions at the end of the brain to the organs that move according to the requirements and nature of each Performance, accuracy, and the changes that the kinetic duty imposes on the apparent behavior

towards the correct technical technique through their continuous pruning of excess movements by the number of times the performance of each exercise in the curriculum prepared to integrate learning with the mixing of these two strategies,<sup>11</sup> so that there is a clear role for mental knowledge in how the muscular nervous control to extract the skill as required. By comparing what the learner has completed from the current performance and what must be done according to the information provided by the philosophies that are easy to encode in the motor memory to make it easier to understand and link with the previous information about it as well as linking the previous responses to the best that can be provided by new responses, as it cannot deal with Female learners from the behavioral point of view, regardless of the brain's role in skillful learning, in line with the trends of modern schools in learning that emphasize the necessity of investing the knowledge evidence to strengthen the link between responses and organizing the return of information in the brain nerve connections network in a way that facilitates the movement programs and not complicating them, while giving The freedom of the educated to direct her to perform in a way that suits her abilities and their mobility to be we know it is not forced, which increases their motivation towards this kind of dynamic learning when applying the two skills in the lesson,<sup>12</sup> what affects learning is not the level of colors, shapes, images and layouts of the main and central branches because they all activate the senses to receive information, and that the real influence In learning, it is the content and content it contains for the learner's information.<sup>13</sup> Also see that there are goals for cognitive learning that it plays an important role in education by helping to push learners to acquire modern scientific knowledge and trends, and stimulating the learner's motivation skillfully Cognitively, and to help inform learners of their progress of information and knowledge.<sup>14</sup> State that "there are specific ideas related to the new subject found in the learner's cognitive structure and provide entry points that facilitate the connection of new information in the cognitive structure."<sup>15</sup> knowing the performance requirements has led to the students' understanding of the elements Motor skills. The learner needs teaching strategies that allow him to discover scientific knowledge himself. He needs to learn through work and experience to be that realistic person who will occupy the appropriate job site in a society whose economy is knowledge efficiently and competently.<sup>16</sup> The learner does not need a traditional teacher to transmit information and ideas to him in a ready manner. When we imagine the skill, we find it consisting of cognitive, mental, emotional and emotional components, and performance. There is no effective skill in the absence of the basic knowledge necessary for it, without exaggerating the enlargement of the role of knowledge as a component of the skill and the conditions for performing the skill to be done quickly, thoroughly, effectively and effortlessly, few and low.<sup>17</sup>

#### **IV. Conclusions**

1. That the application of the blending strategies of mental and cognitive maps helps in improving the learning of the performance of the skill of the overwhelming plane hitting and its accuracy among the fifth preparatory students, and excels at improving the learning of its performance and accuracy among students who are educated by the methods used in the lesson of physical education.

2. It is necessary to pay attention to adopting practical applications to mix the teaching strategies that are concerned with the cognitive structure and to further strengthen the link between the performance experiences of overwhelming hitting skill and its accuracy information in the main section of the physical education lesson.

3. It is necessary to pay attention to the availability of flexibilities that mix mental and cognitive maps in volleyball halls in middle schools.

## References

1. Asmah Hikmat Fadel Al-Samarrai; Building and codifying a scale of scientific knowledge and its relationship to skillful performance in volleyball: PhD thesis, College of Physical Education and Sports Science, University of Baghdad, 2002, p. 56.
2. Omniah Algoni; The effect of the interaction between strategy, concept maps, and the level of intelligence on achievement and the acquisition of some science processes for fifth graders in the subject of science: The Egyptian Association for Scientific Education, the third scientific conference, science curricula for the twenty-first century and a future vision: 1999, p. 289.
3. Tawfiq Ahmad Merhi and Muhammad Mahmoud Al-Haila; General teaching methods, 4th edition: Amman, Wael Publishing and Distribution, 2009, p. 216.
4. Adel Abu El-Ez and others; General teaching methods, contemporary applied treatment: Amman, Dar Wael, 2009, p. 235.
5. Abdel Hamid Hassan Abdel Hamid Shaheen; Advanced Teaching Strategies, Learning Strategies, and Learning Styles: Alexandria University, Faculty of Education, 2011, p. 60.
6. Adnan Yousef Al-Atoom and others; Educational Psychology Theory and Practice, 3rd floor: Oman, Dar Al Masirah for Publishing, Distribution and Printing, 2011, p. 124
7. Qasim Saleh Al-Nouashi; Science and its Scientific Applications: Oman, Dar Al-Masirah, 2007, p. 120.
8. Majdi Salah Al Mahdi; Educational Research Methods: Cairo, Dar Al-Fikr Al-Arabi, 2019, p. 214.
9. Mohamed Saad Zaghoul and Mohamed Lotfy El-Sayed; The Technical Basics of Volleyball Skills for Teacher and Coach: Cairo, The Book Publishing Center, 2002, p. 7
10. Muhammad Yassin Wahib and Nada Fattah Zidan; Thinking Development Programs, Types, Strategies, and Methods: Mosul, Mosul University, 2001, p. 38.
11. Mahmoud Dawood Al-Rubaie and others: Learning Theories and Mental Operations: Beirut, Dar Al-Kutub Al-Alami, 2013, p. 46.
12. Mona Mohamed Born. The effect of two paradigmatic thinking and mental maps on achievement of mathematics, correcting arguments and revealing mathematical fallacies: PhD thesis, University of Baghdad, College of Education for Pure Sciences: 2013, p. 45
13. Nahida Abdul Zaid Al-Dulaimi and others; Modern Volleyball and its Specialized Requirements: Beirut, Dar Al-Kutub Al-Alami, 2015, p. 95.
14. Alsayigh HA, Athab NA. The Study of Rectus Femoris Activity after Knee Joint Rehabilitation. 2016;9(9):360–5.
15. Jumaah H, Ktaman A, Abdul N, Athab K, Mohammed A. The Effect of Using Pain Management Techniques in the Rehabilitation of Chronic Lower Back Injury in Athletes and Non- Athletes. :108–12.
16. Athab NA, Hussein WR, Ali AA. A Comparative Study for Movement of Sword Fencing Stabbed According to the Technical Programming in the Game of Fencing Wheelchairs Class B. Indian Journal of Public Health Research & Development. 2019;10(5):1344-7.

17. Athab NA. An Analytical Study of Cervical Spine Pain According to the Mechanical Indicators of the Administrative Work Staff. Indian Journal of Public Health Research & Development. 2019;10(5):1348-54.