

THE EFFECT OF EDUCATIONAL CURRICULUM ACCORDING TO KOLB'S THEORY ON DEVELOPING MENTAL IMAGERY AND LEARNING A SKILL OF VOLLEYBALL SETTING FOR JUNIORS

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Abstract

The aim of this research is to identify the effect of the educational curriculum according to Kolb's theory in developing the mental perception of young people, as well as its effect on learning the skill of preparation in volleyball. The research hypothesized that the approach in this work had a significant effect in developing mental perception and learning the skill of preparation in volleyball. The research community is represented by the emerging neighborhood club players for the season 2020-2021 in State of Wasit Governorate, Iraq, which has nominated a 27 players. A two groups were chosen by lottery to represent the control and experimental sample. Each group consisted of 10 players. The research involved an exploratory experiment to extract the scientific parameter for the tests under search tribal. The application of the educational curriculum and after completing the application of the curriculum the post tests were conducted under the same conditions and variables similar to the tribal tests. Among the most important conclusions reached in this work are the educational curriculum according to Kolb's theory has a positive effect in the process of developing mental imagery which in turn provides a better view of learning skills. The experimental group outperformed compare to control group in mental perception.

Key words: Educational curriculum. Kolb's theory. Learning skills. Volleyball

Introduction

The educational process takes organizational frameworks that keep pace with the new methods. The process of choosing the concept that built on the available capabilities for planning the educational curriculum (Usman 2016). By adopting and employing motor learning in an appropriate manner, with the ability and possibility of individuals and their acquisition of the sporting motor skill and mastery (Lisa 2013). The volleyball is one of the sporting events in which basic skills are an important base to raise the player's level and mastery of their skills, which prompted the educators to give teaching these skills a greater share in the educational curricula. A giving more time to education is not feasible alone; as there are many methods and multiple educational means need to be observed also (Maja 2012). These methods are increases the speed of skill learning and acquisition, and information. The content may need to be presented in different ways or arranged so that it becomes more understandable and directly related to the needs of education (Teodóra 2020). These are including educational

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theories, namely Kolb's theory of learning, which works to reduce the burden placed on the learner through the exchange of work between the two sides. The physical and mental aspect requires adjusting the educational curriculum and reorganizing the presentation of information to learners through the development of educational science (Linda 2019). Hence the importance of the research by giving an appropriate educational method to develop the mental perception of learners through the educational curriculum, which leads to the speed of learning. The multidimensional learning skill of preparation in volleyball is a complex process of training and educating younger generations emphasizing on the physical education (Cristian 2018). Learning in its multiple and modern directions requires the use of different methods and theories, including Kolb's learning theory (Alice Y Kolb 2011). Which gives a novice with experiences that can help to build more information and better comprehend. The form of motor performance of the skill through process of using mental visualization can have produced good performance. This can be effective to the beginners through the learning stages that have a result in teaching the basic skills of volleyball. Then, it must be carried out according to an appropriate educational method, in a line with Kolb's theory of learning. Which allows the learner to understand or construct an appropriate motor form for the skill to be learned. In this study, the researchers tried to use Kolb's teaching theory of learning as a means and accompanying method to teach the skill. The preparation in volleyball that serves the teacher and the novice learner to reach a better level. Where the research objective divided in to two parts; First recognizing the effect of the educational curriculum according to Kolb's theory in developing the mental perception of young volleyball players. Second is to recognize the impact of the educational curriculum according to Kolb's theory (Jennifer 2012), in learning the skill of preparing in volleyball for young players. The hypotheses of the research are the educational curriculum according to Kolb's theory has a significant effect in developing mental perception and learning the skill of preparing in volleyball for young players.

Methodology

Participants and sample

The research participants identified the neighborhood volleyball club players,

the junior category in State Wasit Governorate, which numbered 27 players. The sample was selected from the research community and divided equally in a random way by lottery into two groups, the experimental group that worked with the research variable and the 10 junior's participant and the control group that worked in the style followed by the coach and they are 10 juniors. The players of the exploratory experiment were selected with 7 players. The sample under research were compromised 74%.

The homogeneity of the sample and the equivalence of the two research groups

Sample homogeneity: The researchers verified the homogeneity of the research sample in the variables related to anthropometric measurements (height, mass, chronological age, and training age), as shown in Table 1 (Table 1).

The results listed in Table 1 show that the calculated skewness coefficient values for all variables are less than (± 1), which indicates the homogeneity of the sample members in all variables namely length, mass, chronological age, and training age (Ali Radhi 2021).

Equality of the two research groups: To ensure starting from one starting line for the experimental and control groups, the researchers extracted the equivalence of the sample in all the studied dependent variables. Which is based on the results of the tribal tests for the two groups as shown in Table 2 (Table 2).

Devices and tools used in the research: The researchers used many devices and tools in their work, including: Flying balls number (10) Molten type; Plastic whistle number (2); laptop; 5 cm wide colored masking tape; 10 colored plastic cones; Medical scale type; Camera.

Measurements

Mental imagery scale

The used scale includes four mathematical situations as follows: practice on your own; practice with others; Seeing the colleague; performance in the

Table 1: Shows the samples' homogeneity in the variables (Height, mass, age, and training age).

Variables	Measuring unit	Mean	Median	Standard deviation	Coefficient of Skewness
Height	Centimeter	149.67	153.0	5.15	0.77
Mass	Kg	43.37	42.50	2.81	0.93
Age	Year	15.38	15.50	0.71	0.50
Training age	Year	1.58	1.62	0.81	0.15

Table 2: Shows the equivalence in the variables (bumping, serving, and cognitive achievement in volleyball) between the control and experimental groups.

Variables	Control group		Experimental group		(t) value	p value
	Mean	SD	Mean	SD		
Mental imagery	54.76	7.13	55.34	7.15	0.691	0.95
Technical performance of volleyball setting	3.62	0.78	3.56	0.70	0.839	0.82

competition. Each of these positions includes four axes as follows: The visual axis: i.e. the mental visual vision during the performance; Auditory axis: the feeling of hearing sounds during performance; Sense-kinesthetic axis: that is, the feeling of the muscles of the body during performance; Emotional axis: the feeling of emotional state during performance.

After completing the visualization process, the player evaluates himself according to a five-dimensional estimation scale as follow: 1) Lack of a mental picture of the situation: none; 2) The presence of an image but it is not clear: an image that is not clear; 3) A medium clear image: the image is medium; 4) A very clear picture: the picture is clear.

The grades are graded as follows: Visual perception = all scores in statement (1) for the four situations; Auditory perception = all scores in phrase (2) for the four situations; Kinetic sense = all degrees in phrase (3) for the four positions; Concomitant emotional state = all scores in statement (4) of the four situations.

The grades for each dimension range between (4) marks as a minimum and (20) as a maximum, and the total test score ranges between 20 as a minimum and 80 as a maximum, and the higher the degree, the more that shows your competence in the ability to mentally visualize.

Technical performance test of volleyball setting

In evaluating the technical performance of volleyball setting, the researchers relied on a standardized test used in previous research (Miguel 2016, Osama 2000) as this test relied on the apparent construction of skill in the evaluation process and according to the three skill sections and grades for each section as shown: Preparatory section (3) marks; main section (5) marks; final section (2) degrees.

The objective of the test: Evaluating the technical performance of the preparation through the three sections of the skill (preparatory, main, and final).

Tools used: a legal volleyball court, volleyballs (3), a pre-prepared calendar form, a video camera, and a CD-ROM.

Performance method: The laboratory performs the preparation skill in the specified area of preparation, i.e. from the center (3), trying to perform the preparation skill correctly.

Registration: The two researchers photographed the three attempts for each lab and then presented them to three assessors to evaluate the three attempts for each lab student. The three marks are awarded for each assessment. Noting that the final assessment score for each attempt is (10) degrees, divided into the three skill sections, which are (3) marks for the preparatory section, (5) marks for the main section, and (2) marks for the final section. After that, the best score is selected for each component. By extracting the arithmetic mean of the best three scores, the final score for each laboratory is extracted, as illustrated in Figure 1 (Figure 1).

The exploratory experience

In order to adjust the variables of the study, and to ensure the vocabulary of the curriculum, the researchers must conduct an exploratory experiment before the main experiment of the research to find out the obstacles to work. Seven players who did not participate in the main experience.

The Scientific foundation

For the purpose of ensuring the correct measurement, researchers must verify

the scientific transactions of the tests before conducting the main experiment. The tools and approaches for achieving measurement assurance, confidence in data and results, and the facility for sharing data were observed (Anne L. Plant 2018).

The validity of the test

Honesty is one of the important qualities that a good test must be characterized by, and honesty is defined as "the extent of the validity of the test or scale in measuring what it was designed for (Haradhan 2017). The researchers extracted the validity coefficient by means of the content validity, as "the content validity of the test depends mainly on the extent to which the test can represent the contents of its elements, as well as the attitudes and aspects that it measures in honest, homogeneous and highly significant representation to achieve the goal for which the test was set (Osama 1990). Accordingly, the researchers presented a form A questionnaire for the tests under consideration was given to a group of experienced and specialized persons. Therefore, presenting the forms to experts and specialists is considered authenticity of the content.

Test reliability

The stability of the test expresses "the test that gives close results or the same results if it is re-applied more than once and in the same conditions (Gerald 2001). The researcher found the reliability coefficient for the skill tests by adopting the method of applying the test and reapplying it to the same sample in two similar days under the same circumstances. It is one of the most appropriate ways to determine the stability of many scales and tests in the kinetic field (Ali Salloom 2004). The test of mental visualization and preparation skill was applied to the members of the exploratory experiment sample (Robert 2010) which numbered (7) players from the research community on 25/11/2020 at fixed time, then the same skill tests were repeated after (5) days on 29/11/2020 on the same time. In both tests, the researchers extracted the reliability coefficient. It was significant after comparing it with the tabular (t) value of (0.57) with a degree of freedom (10) and below the significance level (0.05), which indicates the stability of the tests used.

The post-tests

After the end of the specified period of the educational curriculum and the implementation of the educational curriculum of the experimental group and the curriculum followed by the trainer for the control group, post- tests of mental visualization and preparation skill were conducted on 01/03/2021, and under the same conditions as the tribal tests.

The Statistical means

The researchers used the following statistical methods: The Percentage; Arithmetic mean; standard deviation; T-test for independent samples; T-test of correlated samples.

Results

Presentation and analysis of the results of the tribal and posterior differences test for the control group

Table 3 shows the arithmetic means, standard deviations, and the calculated (t) value between the pre and post tests for the control group in the research tests (mental imagery, volleyball setting). The results of the pretest for mental imagery showed that the arithmetic mean is (54.76) with a standard deviation of (7.13), while the arithmetic mean in the post test was (62.18) with a standard deviation of (5.45), and the calculated (t) value was (1.56), which is smaller than its tabular value of (2.26) This indicates that there is no significant difference

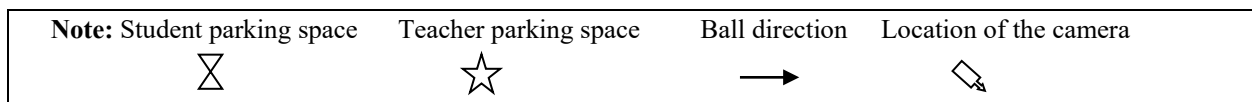
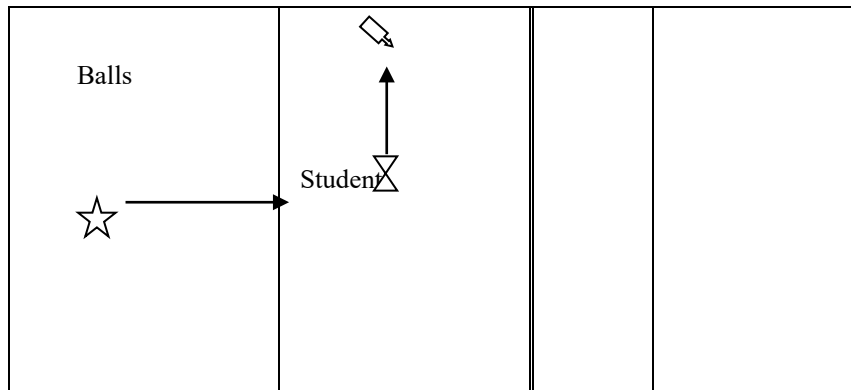


Figure 1: Shows the technical performance of volleyball preparations.

Table 3: Shows the means, SD, and the (t) values between the pre and post-tests of the control group.

Variables	Pre		Post		(t) value	Indication type
	Mean	SD	Mean	SD		
Mental imagery	54.76	7.13	62.18	5.45	1.56	Not significant
Technical performance of setting	3.62	0.78	7.10	1.07	2.71	Significant

Tabular value (t) = (2.26) at the level of significance (0.05) and at the degree of freedom (9)

Table 4: Shows the means, SD, and t values between the pre and post-tests of the experimental group.

Variables	Pre		Post		(t) value	Indication type
	Mean	SD	Mean	SD		
Mental imagery	55.34	7.15	68.72	4.12	4.52	Significant
Technical performance of setting	3.56	0.70	8.18	0.63	6.16	Significant

Tabular value (t) = (2.26) at the level of significance (0.05) and at the degree of freedom (9)

Table 5: Shows the results of the control and experimental groups in the post tests.

Variables	Control		Experimental		(t) value	Indication type
	Mean	SD	Mean	SD		
Mental imagery	62.18	5.45	68.72	4.12	3.15	Significant
Technical performance of setting	7.10	1.07	8.18	0.63	3.13	Significant

Tabular value (t) = (2.26) at the level of significance (0.05) and at the degree of freedom (18)

between the pre and post-tests in mental imagery test. In the pre-test of volleyball setting, the arithmetic mean was (3.62) with a standard deviation of (0.78), while the arithmetic mean in the post-test was (7.10) with a standard deviation of (1.07), and the calculated value (t) was (2.71) which is greater than its tabular value of (2.26) at the level of significance (0.05) and below the degree of freedom (19), which indicates the existence of a significant difference between the pre and post-tests in favor of the posttest (Table 3).

Presenting and analyzing the results of the tribal and dimensional differences test for the experimental group

Table 4 shows the arithmetic means, standard deviations, and the calculated (t) value between the pre and post tests for the experimental group in the research tests (mental imagery, volleyball setting). The results of the pre-test for mental imagery showed that the arithmetic mean is (55.34) with a standard deviation (7.15), while the arithmetic mean in the post test was (68.72) with a standard deviation of (4.12), and the calculated (t) value reached (4.52) which is greater than its tabular value of (2.26). This indicates the existence of a significant difference between the pre and post-tests in the test mental imagery and in favor of the post-test. In the pre-test of volleyball setting, the arithmetic mean was (3.56) with a standard deviation of (0.70), while the arithmetic mean in the post-test was (8.18) with a standard deviation of (0.63). The calculated value (t) was (6.16), which is greater than its tabular value of (2.26) at the level of significance (0.05) and below the degree of freedom (9), which indicates a significant difference between the pre- and post-tests and in favor of the post-test (Table 4).

Presenting and analyzing the results of the differences in the post-tests of the two experimental and control groups

Table 5 shows that the results of the arithmetic mean of the mental imagery speed test in the post test for the control group is (62.18) and with a standard deviation of (5.45), while for the experimental group, the arithmetic mean after the test was (68.72) and with a standard deviation (4.12). The value of (t) for the computed amount reached (3.15), which is greater than the tabular amount (2.1) at the level of significance (0.05) and below the degree of freedom (18). This indicates the existence of a significant difference in favor of the experimental group. As for the technical performance test of the volleyball setting, the arithmetic mean of the post-test for the control group was (7.10) with a standard deviation of (1.07). The arithmetic mean of the post-test for the experimental group was (8.18) with a standard deviation (0.63), as the calculated (t) value reached (3.13), which is greater than the tabular amount (2.1), at the level of significance (0.05), and below the degree of freedom (18). This indicates a significant difference between the two arithmetic means and in favor of the experimental group (Table 5).

Discussion

Through our observation of Table 5 of the results of mental imagery, the following showed that there were significant differences in the post tests between the control and experimental group and in favor of the experimental group. This is in agreement with the hypothesis of the research. The researchers attributed the reason for this development to the effectiveness of the approach

used in developing mental imagery during their exposure to educational aids directed towards mental imagery of the motor performance of non-numbering skill in volleyball. This is in consistent with the opinion of (Jenny 2009), which indicates that These approaches clarify the picture after it was blurry (unclear) at first. Also contributed to giving sufficient mental information and repetitions that contributed to the understanding and knowledge of the skill in different match conditions (Muslim. 2020) which sees that the mental perception of motor skills helps in achieving more understanding of the nature of motor skills performance in accordance with play and competition. The applied approach of differentiated education also helped in developing kinetic sensations and repetition of these sensations during the implementation of the skill. Which in turn gave them a good opportunity to observe kinetic sensations and try to mentally repeat and repeat them. In addition, the curriculum according to Kolb's theory of learning practiced by the experimental group has helped to analyze the important parts that make up the motor skill. Which is providing opportunities for coordination between the nervous and muscular systems. this is what was indicated by (Osama Kamel Ratib, 1990) as the sense of movement plays an important role in the process of motor coordination as well as a sense of speed of movement. Table 5 also shows that there are significant differences between the post-test for the control and experimental groups and in favor of the experimental group. The researchers attribute the reason for this development to the approved curriculum, which contributed to the learner's acquisition of adaptation to performance during the implementation of the preparation. As a result of continuous repetition according to this approach, a teaching skill performance is one of the main elements that must be available in any skill. Which is in consistent with the opinion of (Yarub Khayoun 2002), indicating the accuracy is one of the important variables in the field of learning and motor behavior, due to many mathematical skills require motor implementation with minimal errors.

Conclusions

The curriculum adopted according to Kolb's theory has a positive impact on the process of developing mental imagery, which in turn provides a better view of learning skills. The experimental group excelled in mental imagery better than the control group. The control and experimental groups have a good learning effect of the approach followed for both of them, but the experimental group was better in learning than the control group.

The Recommendations

The necessity of taking into account educational theories when learning the skill performance of some basic volleyball skills because of their clear impact on the learning process. The necessity of taking into account the mental perception in all its axes to benefit from it in developing the learning process. Conducting research similar to the rest of volleyball skills.

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Conflict of interest

All authors declare no conflict of interest.

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