IMPACT OF AN EDUCATIONAL CURRICULUM TO DEVELOP TECHNICAL PERFORMANCE OF SOME BASIC SKILLS IN MINI-VOLLEYBALL

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ABSTRACT

Background. Mini-volleyball is a simplified version of volleyball designed to suit young learners and can be played in smaller spaces, both indoors and outdoors. It is widely used as an introductory platform to develop fundamental motor and technical skills among children. However, many young players lack access to structured and age-appropriate training programs. **Objectives.** The research aims to develop a proposed educational curriculum to develop some basic skills among mini-volleyball players in the experimental group. Identifying impact of proposed educational curriculum to develop basic skills among mini-volleyball players in the experimental group. **Method**. The researcher adopted an experimental approach involving a pre-test and post-test design with two groups: experimental and control. The sample consisted of 16 participants (aged 9–12 years) randomly selected from a specialized football school in Maysan, drawn from a total population of 30 students. The experimental group followed the newly designed educational curriculum, while the control group received conventional instruction. **Results.** Analysis of pre- and post-test data indicated significant improvement in both groups, with the experimental group demonstrating superior gains in technical skill performance. The curriculum was effective in systematically enhancing the targeted skills. **Conclusion.** The proposed educational curriculum positively influenced the technical development of mini-volleyball players, particularly in serving, receiving, and setting. These results support the integration of structured and developmentally appropriate curricula in youth training programs to optimize learning outcomes.

Keywords; educational curriculum, technical performance, basic skills, mini-volleyball

A. INTRODUCTION

Volleyball is a popular team game played by all ages because it does not require a large space to play. It can be played in a small space, open or closed, indoors or outdoors, by all age groups, whether young or old (de Oliveira Castro et al., 2022). Therefore, learning it in the cubs stage is better for young players to master it. The wide popular movement of mini-volleyball has played an important role in increasing the popularity of the game and its spread throughout the world (Wibowo et al., 2022).

A player's mastery of volleyball skill performance depends primarily on good technical performance of basic skills (Mahedero et al., 2021). Correct technique in terms of strength and speed gives the player accuracy in performance, which leads to obtaining most of the important points for the team during the match, as good technical performance is considered an essential element in the accuracy of skill performance and bringing the player's level to automation. Therefore, the player's ability to send, receive, or prepare the ball correctly without committing any error in executing the skill duty will affect the players of the opposing team and their inability to control the course of the game and perform well (Sumantri et al., 2023).

Developing basic technical skills in volleyball requires a preparation process that includes a set of special exercises to be applied in educational units to develop the player's physical and skill capabilities (de Azevedo Sodré Silva et al., 2023). Acquiring these capabilities will lead to possessing the motor ability to implement the technical performance of the skill, as the coach plays a major role in his players' mastery of the movement sections when successfully executing the skill, by developing a special curriculum for the beginners category according to correct scientific foundations in which the coach takes into account the structural aspect of the body and the level of their physical and mental abilities (Septiana & Supriadi, 2022).

Widespread practice of volleyball among children between the ages of (9-12) allows for the discovery of early talents to a sufficient degree, so the basic technical skills of the game are mastered in the early stages of learning and at an early age is better for beginners (Oliinyk et al., 2021). Also, the study sample is represented by a group of young players, and this important age group requires the use of special methods and techniques and educational

aids that contribute to the development of their skill abilities, as the possession of a mini-volleyball player of technical performance accuracy is an important element in achieving a point for the team in the match, so the coach must ensure that each player has the ability to perform the skill well. The mini-volleyball player needs, in the early stages of preparation, to gradually learn the technical performance of the skill to reach motor accuracy, and this matter requires the coach to develop an educational curriculum that includes a group of special skill exercises, which are compatible with the player's physical and mental abilities that help him apply the skill easily and with high accuracy (Dupri et al., 2021).

The importance of research is evident in researcher's treatment of a topic related to the category of beginner cubs, which is represented by developing a proposed educational curriculum for mini-volleyball coaches, which includes a group of special skill exercises in order to help raise the level of young players, through developing the technical performance of basic skills among mini-volleyball players. The basic skills seem easy to perform, but performing them well requires the novice player to exert physical and mental effort, especially when learning them at this age from young players during the implementation of its preparatory, main and final sections (shareef, 2020).

Therefore, the researcher sought, through field experience in field of training and teaching, to notice that is a deficiency among most mini-volleyball coaches in preparing their own educational curricula for learning the technical performance of the basic skills of the game, due to the use of traditional learning methods and styles in presenting the skill well so that it is easy to learn and the extent to which the skill is fixed and mastered in its performance in the best way, especially. Therefore, the researcher decided to conduct his research study in an attempt to identify the effect of his proposed educational curriculum in developing some basic skills among mini-volleyball players, and the ability to technically perform these basic skills and benefit from them well.

The current research aims to develop a proposed educational curriculum to develop some basic skills among mini-volleyball players in the experimental group. Identifying impact of proposed education curriculum on developing some basic skills among mini-volleyball players in the experimental group. This study was guided by two main hypotheses. First, it was hypothesized that the proposed educational curriculum would have a significant impact on developing certain basic mini-volleyball skills among participants in the

experimental group. Second, it was expected that there would be statistically significant differences in the development of these skills within the experimental group between the pre-test and post-test results, with the post-test scores reflecting greater improvement.

Several key terms were used throughout the study and are defined here for clarity. The underhand serve refers to a basic volleyball serving technique performed from below shoulder height. It is simple and easy to learn, making it particularly suitable for beginners. The receiving skill is one of the core defensive techniques in volleyball; it involves accurately and effectively handling an opponent's serve or attack. Mastery of this skill is essential for maintaining game continuity and building effective counterattacks. The counting skill, also known as the setting skill, is a fundamental technique where the ball is played from above using the fingers, and is often taught in the early stages to introduce players to the technical aspects of offensive play. Lastly, mini-volleyball (V.M) is a simplified form of standard volleyball designed specifically for children aged 9 to 12. In this format, teams consist of three players (3 vs 3), the court measures 12 meters in length, with a 2-meter front zone and a 4-meter back zone, and the net height is set at 2.10 meters. This adaptation aims to create an age-appropriate, accessible learning environment for young players.

B. METHOD

Participant

The research community consisted of (30) players from the specialized football school in Maysan, aged (9-12) years. The researcher randomly selected the research sample from a group of (16) players from the football school in Maysan. Two (2) players were also selected from the sample for the purpose of conducting the exploratory experiment. The sample was randomly divided into two groups: one experimental group, comprising (7) players, and the other control group, comprising (7) players.

Sample Homogeneity and Equivalence

The researcher performed a homogeneity and equivalence process for sample in variables (age, height, weight, and technical performance of some basic skills) by calculating the skewness coefficient for the sample members' results, as shown in Tables (1, 2).

Table 1. Shows homogeneity of experimental and control research groups in study variables

No.	Variables	Measurement Unit	Mean	Mediator	St.d	Coefficient of skewness	Result
1	Chronological age	year	11,600	11,500	0.699	0.429	Homogeneous
2	Height	cm.	141,400	141,500	2.647	0.113-	Homogeneous
3	Mass	Kg.	49,800	49,000	2,919	0.822	Homogeneous
4	Sending skill	Degree	3,279	3,400	0.250	1.452-	Homogeneous
5	Reception skill	Degree	2.377	2,200	0.212	0.646	Homogeneous
6	Preparation skill	Degree	3,437	3,300	0.361	1.139	Homogeneous

It is clear from Table (1) values of skewness coefficient were less than (+1), which indicates that sample members were homogeneous in variables (age, height, weight, and technical performance of skills under study).

Table 2. Shows equivalence of two study groups (Experimental and Control) in technical performance variables

Statistical process	Measurement Unit	Experimental group		Control group		(T) value	Sig. level	Sig. type
Test name		Mean	St.d	Mean	St.d			
Sending skill	Degree	3.213	0.165	3.345	0.335	0.426	0.341	Insig.
Reception skill	Degree	2.440	0.278	2.314	0.146	0.276	0.537	Insig.
Preparation skill	Degree	3.365	0.354	3.509	0.368	0.570	0.254	Insig.

Freedom degree (n-2) (14-2=12), * significant if the significance level (Sig) ≥ (0.05)

Research Design

The researcher used experimental method with experimental design for two experimental and control groups with pre- and post-tests, as it suited nature of solving the study problem. The researcher prepared a questionnaire to identify the skill tests (sending, receiving, and setting). The questionnaires were then collected, the data was sorted, and divisions that scored less than (30) relative importance or less than (60) percentage were excluded, according to the experts' opinion. The results showed that model (3) was accepted for each of the (6) divisions for each of the skills under study, as shown in Table (6). The researcher's goal was to select an appropriate technical performance assessment for the research sample, which relied on the apparent structure of the skill in the evaluation process. This was based on the three skill sections: (the preparatory section for the skill (3 points), (the main section for the skill (4 points), and (the final section for the skill (3 points). The

researcher assigned a specific score to each of the three skill sections, noting that the final evaluation score for the skill as a whole is (10) points.

1. Testing the performance of the skill of serving from below in volleyball. Naheda Abdel Zaid (11:78).
2. Testing the performance of receiving from below with the hands in volleyball. Mohamed Sobhi (9:204).
3. A performance test of the skill of preparing from above in volleyball: Muhammad Subhi (205:9)

Pilot experiment

The researcher was keen to conduct Pilot experiment to identify the method of implementing the test by the players participating in the study, as well as to determine the time required to complete the evaluation requirements for the steps of implementing the test.

Scientific foundations for the tests

The researcher was keen to adopt scientific foundations in the process of selecting and implementing the tests, despite them being standardized tests, to determine the extent to which these tests are effective in measuring the basic volleyball skills under study.

Validity

The researcher used the method of content validity, as Muhammad Jassim Al-Yasiri (: 87) believes that "validity allows the test to measure to a high degree what it claims to measure." They agreed that these tests are valid and appropriate for the study sample.

Table 3. Tests of sending, receiving and setting in volleyball

No.	Test name	Validity	
		Suitable	Not suitable
1	Volleyball Overhand Serve Performance Test	8	zero
2	Volleyball receiving skill test from below with hands	8	zero
3	Performance test to measure the accuracy of the top-down volleyball	8	zero

Reliability

The researcher used the test and retest to calculate the reliability of the two tests by applying the two tests on Sunday 6/21/2024 on a sample of (2) players who did not participate in the main experiment. The researcher was also keen to reapply them after seven days on the same sample on Sunday 6/28/2024. The researcher used the simple Pearson correlation coefficient between the scores of the tests under study, which are the reliability and objectivity coefficients, as shown in Table (4).

Objectivity

Objectivity was established between the two tests by presenting them to volleyball experts and specialists, and their opinions were close and objectivity was achieved by approval.

Table 4. Shows coefficients of stability and objectivity in tests of some basic volleyball skills

Tests	Reliability	Objectivity
Downward volley serve	0.94	0.92
Volleyball receiving from below with hands	0.92	0.90
Volleyball top-downs	0.91	0.90

Pre-tests

The skill tests were conducted with help of support team on two research groups on Wednesday and Thursday, corresponding to (4-5/7/2024) at nine o'clock in the morning in the Martyr Wissam Arabi Hall in Maysan. The researcher gave an explanatory explanation of how to apply the tests to the research sample before conducting the practical tests.

Program Application

The researcher aims to develop the performance of some basic volleyball skills for ages (9-12) years according to a modern scientific vision in the field of motor learning and the game. Therefore, the researcher was keen to introduce exercises and use modern educational methods that help learners understand and comprehend the skill sections in detail, by presenting them to them on video with picture and sound using a (data show) device as a realistic educational model, which leads to the learner acquiring an image of the

skill performance in an easy and clear way for the players, and thus contributes greatly to the speed of understanding as a result of interaction with what is presented to him on the screen of the image of the technical performance of the basic skills in volleyball. The use of modern educational methods and techniques is represented in controlling the way the coach presents the educational video for the skill, and the method through which they are provided with feedback and information to correct errors, which occur when applying the skill sections by young players of this age group.

At that time, the level of their physical and mental abilities must be taken into account in understanding and applying the motor duty with high accuracy in the educational unit during the units. English: Educational, in order to benefit from these modern means in the field of learning basic skills that help novice players from this important age group, as it is considered the basic foundation of the game and the extent to which it achieves advanced levels in the field of the game in the future. The duration of implementing the educational curriculum was set at (15) weeks, starting from Saturday 7/7/2024 and continuing until Wednesday 28/8/2024. The average number of educational units per week was (3) educational units, totaling (45) units, and the time was (60) minutes.

Total time for implementing the educational curriculum vocabulary was (2700 minutes), distributed over the general and special warm-up (10 minutes), the educational part (10 minutes), the practical part (30 minutes) of the main section, and the final section (10 minutes). The control group applies the vocabulary and educational method followed by the coach, Salam Falih, which learns according to the vision of the coach, through which he seeks to transfer his practical experiences in the field of the game, in order to master the performance of some skills in volleyball, which are the skill of serving facing from below and the skill of Reception and preparation skills.

Post-tests

The post-test was conducted on research sample, after completion of training curriculum implementation, in order determine level of physical and skill variables that the research sample reached on Thursday 8/29/2024, using the same methods and conditions used in the pre-test in terms of time, place and tools.

Statistical Methods

The researcher used the statistical program (SPSS) (29) to obtain the results of the study and analyze them statistically.

C. RESULTS AND DISCUSSION

Results

Results of Pre- and Post-Tests for Experimental Group in Tests

Table 5. Shows results of pre- and post-tests for experimental group in research tests.

Statistical transactions / Test name	Measurement Unit	Pre- test		Post-test		(T) value	Sig. level	Sig. type
		Mean	St.d	Mean	St.d			
Sending skill	Degree	3.213	0.165	7.455	.352 0	4.225	0.000 *	Sig.
Reception skill	Degree	2.440	0.278	8,765	0.455	5,516	0.000 *	Sig.
Preparation skill	Degree	3.365	0.354	7,436	0.670	5.326	0.000 *	Sig.

Freedom degree (n-1) (7-1=6), * significant if the significance level (Sig) ≥ (0.05)

Table (5) shows results of transmission skill performance test that mean of pre-test was (3.213) points, with a standard deviation of (0.165), while mean of post-test was (7.455) points, with a standard deviation of (0.352) and calculated (T) value was (4.225), which indicates presence of a significant difference in pre- and post-tests in favor of the post-test.

Table (5) also shows the results of the reception skill performance test that the arithmetic mean of the pre-test was (2.440) points, with a standard deviation of (0.278), while the arithmetic mean of the post-test was (8.765) points, with a standard deviation of (0.455).

The calculated (T) value was (5.516), which indicates the presence of a significant difference in the pre- and post-tests in favor of the post-test. Table (5) shows the results of the preparation skill performance test, as the arithmetic mean of the pre-test reached (3.365) points, with a standard deviation of (0.354), while the arithmetic mean of the post-test reached (7.436) points, with a standard deviation of (0.670) and the calculated (T) value of (5.326). This indicates the presence of a significant difference in the pre-tests and post-tests in favor of the post-test.

Results of pre- and post-tests of control group in the tests under study

Table 6. Shows results of pre- and post-tests for control group

Statistical transactions / Test name	Measurement Unit	Pre- test		Post-test		(T) value	Sig. level	Sig. type
		Mean	St.d	Mean	St.d			
Sending skill	Degree	3.345	0.335	4,011	.214 0	3,268	0.000 *	Sig.
Reception skill	Degree	2.314	0.146	5,516	0.622	4,770	0.000 *	Sig.
Preparation skill	Degree	3.509	0.368	4,298	0.324	3,553	0.000 *	Sig.

Freedom degree (n-1) (7-1=6), * significant if significance level (Sig) ≥ (0.05)

Table (6) shows results of transmission skill performance test that mean of pre-test was (3.345) points, with a standard deviation of (0.355), while mean of post-test was (4.011) points, with a standard deviation of (0.214) and calculated (T) value was (3.268), which indicates presence of a significant difference in pre- and post-tests. Table (5) also shows results of the reception skill performance test that mean of pre-test was (2.314) points, with a standard deviation of (0.146), while mean of post-test was (4.298) points, with a standard deviation of (0.324).

The calculated (T) value was (4.770), which indicates presence of a significant difference in pre- and post-tests. Table (5) shows results of preparation skill performance test, with mean of pre-test reaching (3.509) points, with a standard deviation of (0.368), while mean of post-test reaching (4.298) points, with a standard deviation of (0.324). The calculated (T) value is (3.553), which indicates presence of a significant difference in pre- and post-tests in favor of the post-test.

Results of post-tests for control and experimental groups for basic volleyball skills:

Table 7. Shows post-tests results for experimental and control groups

Statistical transactions	Measurement Unit	Experimental group		Control group		(T) value	Sig. level	Sig. type
Test name		Mean	St.d	Mean	St.d			
Sending skill	Degree	7.455	.352 0	4,011	.214 0	3,908	0.000 *	Sig.
Reception skill	Degree	8,765	0.455	5,516	0.622	4.276	0.000 *	Sig.
Preparation skill	Degree	7,436	0.670	4,298	0.324	3,095	0.000 *	Sig.

Freedom degree (n-2) (14-2=12), * significant if the significance level (Sig) ≥ (0.05)

Table (6) shows results of experimental group's test on performance of sending skill, that mean of post-test reached (3.345) points, with a standard deviation of (0.355), while control group's mean reached (4.011) points, with a standard deviation of (0.2140) and calculated (T) value of (3.908). This indicates that is a significant difference in tests between two groups in favor of experimental group. Table (6) shows results of experimental group's test on performance of receiving skill, that mean of post-test reached (8.765) points, with a standard deviation of (0.455), while control group's mean reached (5.516) points, with a standard deviation of (0.622).

The calculated (T) value is (4.276), which indicates that is a significant difference in tests between two groups in favor of experimental group. Table (6) Test results for experimental group in performing preparation skill, mean of post-test reached (7.436) points, with a

standard deviation of (0.670), while control group had mean of (4.298) points, with a standard deviation of (0.324). The calculated (T) value was (3.095), which indicates the presence of a significant difference in post-tests between two groups in favor of experimental group members.

Discussion

Based on results presented in Tables (5, 6, and 7), significant differences were found between the pre- and post-tests, in favor of the post-tests and for both the experimental and control groups. The researcher attributes the results achieved by the experimental group members in the skill tests to the curriculum's adherence to sound scientific principles in the planning, organization, and implementation of its components in the educational units during the application of the curriculum's components (Shareef, 2025).

Cruz (2024) states that the late childhood stage, from the age of 10-12, is when basic motor skills improve most, and most children are able to master complex motor skills (Cruz, 2024).

Their ability to concentrate increases, their attention span becomes longer than before, and they are ready to learn plans and tactics (Syahruddin et al., 2022). Dupri (2021) states that in training children and youth, we must first become familiar with their physical and motor characteristics and the changes that occur to them during the different stages of their growth and motor development (Dupri et al., 2021). The weakness of the player's skill performance, because during the game, skills can be applied, but they may not be applied correctly because the ball that comes to him has different speed, strength, and direction, as well as the player's own movement, in addition to the presence of a competitor behind the net on the field who competes with him for the ball. (Wang et al., 2024)

The proposed curriculum was formulated according to scientific foundations over a period of (12) weeks and with (36) educational units (Oliinyk et al., 2021). It played an important role in the process of mastering the basic skills, which are serving, receiving, and preparing (Yang et al., 2022). The rules of skill performance are very flexible to suit the level of the players, and each national association sets the necessary rules to ensure that the competition remains fair for both competing sides (Klocek, 2023).

In fact, goal of establishing schools for the game is to make volleyball more widespread and to facilitate the refinement of their skills at an early age. Since their expectation of

learning using a standard net is both unrealistic and impossible, this game is one of the development tools used by FIVB to constantly generate new generations of volleyball championships (Sujarwo et al., 2021).

The researcher was keen, through the proposed educational curriculum, to give a clear picture of understanding and comprehension of the basic skills of volleyball, in order to improve the level of technical performance and develop their skill and motor abilities. The learning process was carried out according to the principles of motor learning in terms of the method of presenting and applying the performance of the educational skill, which was characterized by gradual progression from easy to difficult and simple to complex, because the research sample of young players was characterized by limited physical and mental abilities, this age group needs special methods, approaches and educational tools to help develop their skill abilities (Suryadi et.al.,2025).

Vasileva (2024) states, "The primary function of educational tools and equipment is to provide direct experience through which the learner can develop their motor abilities or athletic skills using these tools. The visual effect leads to young players understanding and absorbing the motor task and interacting with it positively. This facilitates their process of absorbing what is presented in educational units, thus improving their technical performance of the skill." (Vasileva & Chumakov, 2024).

Miguel (2021) state, "Diverse or variable training using stimuli as educational tools is more effective in learning than static training without any change."(Miguel et al., 2021). The researcher attributes the results achieved by the members of the control group to the fundamentals of organizing the curriculum prepared by the trainer. The process of preparing and organizing the curriculum components did not develop the level of skill performance of young learners in terms of physical and motor skills, in order to obtain positive results, compared to the superiority achieved by members of the other group in the research tests.

D. CONCLUSION

The results showed that the proposed educational curriculum, applied to the experimental group, contributed to the development of the skills of serving, receiving, and setting in mini-volleyball. The proposed educational curriculum had a positive impact, as demonstrated by statistically significant differences in development basic skills between pre-

and post-tests of experimental group. The experimental group achieved better results in performing some basic volleyball skills than control group in post-test. Although skills of serving, receiving, and setting may be difficult for beginners, they can be learned and mastered by this age group of mini-volleyball players. The researcher recommends that coaches use the proposed educational curriculum, given its positive impact on developing the skills of serving, receiving, and setting up in mini-volleyball. Emphasize the need for coaches to use modern educational methods and techniques to develop basic volleyball skills, given their important role in improving the skill performance of young players. Emphasize the need to utilize the study's results and disseminate them to club and school coaches specializing in volleyball in Iraq. Emphasize the need to conduct similar scientific studies and research in other sports to improve the skill performance of players.

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F. AUTHOR CONTRIBUTION STATEMENT

The AHSA is responsible for designing the content and direction of the research and is responsible for the research. The AHSA assists in data selection, data analysis, and manuscript finalization.

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