

The effect of a physical and sports education program prepared according to pragmatic theory on the development of fundamental Volleyball Motor Skills among high school students.

Cherifi Walid¹ ; Moussaoui Ala-Eddine² ; Chethouna Kamel³ ; Brahimi Aissa⁴

¹University of Batna 2 (Algeria), cherifi.walid@univ-batna2.dz

²University Oum El Bouaghi (Algeria), Moussaoui.alaeddine@univ-obe.dz

³University of Batna 2 (Algeria), kamel.chetehouna@univ-batna2.dz

⁴University of M'sila (Algeria), aissa.brahimi@univ-msila.dz

ABSTRACT

This paper aims to try to find out the impact of an educational program built according to the principles of pragmatic theory in the curriculum in terms of construction and application, in achieving the students' fundamental Volleyball Motor Skills, we assumed that the educational program has a positive effect in acquiring the target competencies, represented by (Serve-receive, Passing, Setting, Spiking). In our study, we relied on a sample of 30 students of the third year of high school, who were chosen randomly and divided randomly into two groups, one experimental and the other control, after doing the pretests represented in the skill performance tests for the previously identified Motor Skills, and doing the educational program for a period of 10 weeks , and after doing the post-tests, it was concluded that (a) the traditional program has an effect on achieving the targeted competencies through the presence of statistically significant differences between the pre-test and the post-test in favor of the post-test for the control groupe. (b) the educational program has an effect on achieving the targeted competencies through the presence of statistically significant differences between the pre-test and the post-test in favor of the post-test for the experimental group. (c) the educational program has a greater effect in terms of the level of fundamental Motor Skills of the students, after there were statistically significant differences between the two post-tests of the experimental and control groups, in favor of the experimental group. This is after statistical analysis of the data according to parametric and non-parametric tests

Keywords: curriculum; physical qualities; physical activities; teaching planning; teaching goals; teaching methods

INTRODUCTION:

The pragmatic philosophy in curriculum design emphasizes the significance of human experience and the societal context in which individuals exist, using these as foundational elements for attaining truth. Consequently, the objectives and content structure are determined based on a comprehensive understanding of human nature, the

social environment, and the learners' needs, aspirations, and readiness. (Al-Aoun, 2017, p. 106)

Pragmatism as an educational philosophy gained prominence only in the late 19th and early 20th centuries. According to Dewey, who effectively merged the roles of educator and philosopher, a democratic society must be adaptable and dynamic. In such a society, teachers recognize that strategies effective for one student may not necessarily suit another. Thus, the theory and practice of education are guided by two fundamental principles: education should serve a social function, and it should provide children with real-life experiences (Sharma, Devi, & Kumari, 2018). Since one of the primary and noble goals of education is to achieve human happiness, any obstacles or challenges that hinder individuals from attaining this happiness become central to educational objectives. Addressing these barriers involves shaping or acquiring behavior through direct experience, as pragmatic philosophy emphasizes the importance of students engaging with society. This interaction occurs through various mechanisms, including cooperation, communication, and the resolution of conflicts. (Al-Aoun, 2017)

The contributions of pragmatic theory as an educational framework in schools cannot be overlooked, as it provides effective models for designing educational programs that help learners achieve the intended curriculum goals. Elsamman Marwan highlighted this in his study titled A Program Based on the Pragmatic Theory to Develop Grammatical Structure Comprehension Skills for Foreign Learners of Arabic, demonstrating the effectiveness of educational programs rooted in pragmatic principles for building and advancing knowledge (Elsamman, 2014). In this context, physical and sports education curricula developed on the basis of pragmatic theory have shown significant contributions to the holistic development of students' personalities. These curricula support mental and cognitive growth by imparting knowledge and information related to health, safety, international standards, and correct performance techniques. Additionally, they foster social and emotional development by promoting values, principles, ideals, and ethics. Finally, they contribute to the psychomotor domain by enhancing skill acquisition, task performance efficiency, and the ability to adapt to varying conditions. (Mohamad, 2016, p. 92)

Teaching planning is a systematic and intentional process aimed at achieving educational objectives in an effective and efficient manner. As Sharaf (2014) notes, "Planning for teaching is a rational and logical process or a series of steps capable of moving the educational organization to ensure its success. It is a future-oriented process based on prediction, which serves as its foundational element" (Abd-Al_Hamid, 2014, p. 27). Given that planning is a reasoned and forward-looking process, it is essential for teachers to adopt it in order to address the complexities of the educational environment, managing its various factors and variables in a way that supports the attainment of desired goals. (Khafaja & Shaltout, 2007, p. 56)

Teaching planning aligns with the principles and philosophy of curriculum theories, as it is a structured, scientific endeavor with defined objectives. It involves various procedures and interconnected relationships, making it a project that cannot be effectively carried out without a solid planning foundation. Such planning must be

grounded in an educational philosophy that emphasizes the connection between the planning process, education, and productive work on one hand, and fosters closer ties between education, the lives of learners, and the realities of the environment in which they live on the other. (Salim, Mina, & Shahata, 2013), Teaching based on the competencies approach should be conducted using a strategy known as the teaching and learning strategy for competencies. This strategy is rooted in behavioral psychology, cognitive psychology, and structural psychology, particularly through its connection to problem-solving processes related to the subject matter. It relies on the application of relevant knowledge and adopts a scientific method that primarily focuses on planning to examine a situation, phenomenon, or problem. The approach involves identifying the scope and dimensions of all available resources and capabilities in order to effectively harness them to achieve the desired goals. (Ata-Allah, Zitouni, & Ben_Quannab, 2009, pp. 72 - 73), However, numerous studies have indicated that teachers struggle to help students attain the targeted competencies, facing several challenges such as time constraints, limited availability of resources and tools, and difficulties in translating content into practice. Hazhazi Kamal (2010) noted a consensus among teachers across both educational stages regarding the challenges of implementing the curriculum content, particularly the lack of educational resources, which they unanimously identified as a major barrier to effectively applying a competencies-based teaching approach in physical education classes. (Hazhazi, 2010). On the other hand, Brahimi Mohamad (2017) identified several obstacles related to the subject curricula, including the misalignment of curriculum units with students' abilities, the irrelevance of content to students' real-life experiences, the lack of adequate supporting documents, insufficient class time to engage in activities, and the limited availability of resources (Brahimi & Behnas, 2017). Meanwhile, Bahri Saber (2017) highlighted a range of challenges, as reported by primary school teachers, concerning the implementation and evaluation of lessons. (Bahri & Kharmouch, 2017).

It is evident that physical and sports education teachers, in particular, encounter significant challenges in implementing educational goals and translating them into effective educational situations that can bring about the desired changes in students. This includes providing students with the targeted competencies, whether cognitive, sensory, kinesthetic, or social. These difficulties arise from teachers' responses in studies on the subject, which highlight that the curriculum content is resource-intensive in terms of material requirements (pedagogical tools and equipment), as well as knowledge. Additionally, the weekly class time is often insufficient to fully achieve the goals. Based on these observations, we pose the following question:

What are the effects of a physical and sports education program prepared according to pragmatic theory on the development of fundamental Volleyball Motor Skills among high school students?

We assumed that :

1. The educational program has an effect on improving Serve-receive competence of the study sample.
2. The educational program has an effect on improving Passing competence of the study sample.

3. The educational program has an effect on improving Setting competence of the study sample.
4. The educational program has an effect on improving Spiking competence of the study sample.

02 - METHODS:

1. **Research community:** The research community consisted of all 677 students of a secondary school in the city of Biskra (Algeria).
2. **Research sample:** We took 30 students from the second year of secondary school, who were randomly selected, where they were also divided randomly to form two groups of equal number, provided that one of them is an experimental group subject to the proposed educational program, and the other remains a control group that works in the traditional program.
3. **Study methodology:** Since we are in the process of knowing the effect of a previously prepared educational program, and this is on a previously selected sample as well, the methodology of the study must be experimental using the two equal groups.

4. Sample homogeneity:

Table (01) shows the homogeneity of the research sample

Variables	experimental group				control group				t student	
	M	S D	s-w test	Sig	M	SD	s-w test	sig level	T valu e	Sig
Height(m)	177.3	6.7	0.19	0.17	173.3	5.6	0.1	0.2	1.84	0.087
Weight(kg)	64.6	13.9	0.18	0.18	66.6	9.2	0.14	0.2	0.44	0.66
Age(mth)	199.1	3.5	0.13	0.2	198.5	3.1	0.16	0.2	0.48	0.63

Note: Sig level: 0.05 / (N=15) for each group / df = 14

It can be seen from the table, and after applying the Shapiro-Wilk normality test, the results showed that the statistical value of the test came with (p-value > Sig level: 0.05), and from it, it can be said that the data are distributed normally, after calculating the means and standard deviations for both groups, in all the variables, it was found that they are closely similar between the two groups, and this was confirmed by the results of the T test, where the test results were not statistically significant in each of the variables of height, weight and age between the two groups, which indicates that there are no differences between the two groups in the variables, which indicates that there are no differences between the two groups in the variables under study, and this is evidence of the homogeneity of the sample in these variables.

5. **Normality of data distribution:** In order to determine the nature of the tests to be used to analyze the data, the nature of the data distribution must be ascertained, If the data are distributed normally, then we can use parametric tests, but if it is the other way around, we must use non-parametric tests.

Table(02) : values for the normality of the distribution test for the two research groups

tests	Shapiro-wilk			
	Experimental group		control group	
	statistic	Sig	statistic	P-value
Serve-receive	0.854	0.020	0.705	0.000
Passing	0.894	0.078	0.891	0.070
Setting	0.903	0.107	0.833	0.010
Attacking	0.928	0.253	0.896	0.083

Note: Sig level: 0.05 / (N=15) for each group

Through the table, we see that 2 out of 4 tests are distributed normally, after the results showed that the value of the test came in which the value of significance p was greater than the level of significance 0.05, (p-value > Sig level), Except for Serve-receive test, where (p-value=0.020 < Sig level=0.05) for the experimental sample, and Setting test, where (p-value=0.010 < Sig level=0.05) for the control group, which necessitates relying on non-parametric tests for these two tests.

- 6. Samples parity:** In order to return the differences to the experimental factor, the parity of the two research groups was verified in the tests, using the T test, where the table showed the following:

Table (03) shows the parity of the two research groups (normal distribution)

tests	Experimental group		control group		t student	
	M	SD	M	SD	T value	p-value
Passing	4.53	1.50	4.07	1.28	0.82	0.409
Attacking	2.20	1.74	1.60	1.54	0.95	0.342

Note: Sig level: 0.05 / (N=15) for each group / df = 14

Through the results of the table above, we see that the results of the T value have a p-value greater than the sig level, (p-value > Sig level), and this means that there are no statistically significant differences between the results of the experimental group and the control group in the pre-tests, and this indicates that the level of the two samples in the tests to be performed is equivalent, which means that the two groups are equal in these tests.

Table (04) shows the parity of the two research groups (non-normal distribution)

tests	Experimental group		control group		Wilcoxon Signed Ranks	
	M	SD	M	SD	Z value	p-value
Serve-receive	2.73	0.88	1.60	0.98	2.38	0.017
Setting	3.93	1.38	3.60	0.98	0.63	0.534

Note: Sig level: 0.05 / (N=15) for each group

Through the results of the table above, we see that the results of the Wilcoxon Signed Ranks have a p-value greater than the sig level, (p-value > Sig level), for the setting test and this means that there are no statistically significant differences between the results of the experimental group and the control group in the pre-tests.

However, (p-value < Sig level) for the Serve-receive test witch means that there are statistically significant differences between the results of the experimental group and the control group in the pre-tests.

7. **Data collection tools:** For the purpose of data collection, we relied on a set of physical performance tests, which are as follows :

test 01: accuracy of serving:

- **Purpose of the test:** To measure the accuracy of serving from the legal serving zone (09 meters).

- **Test description:**

- 03 rings are placed in the opposite half of the field in different places, preferably in the defense area.
- The examinee determines the ring he wants to serve to.
- After hearing the signal, the examinee performs the serve from above, trying to direct the ball towards the rings placed in the opposite half of the field.
- Each examinee is given 09 attempts, 03 attempts per ring.
- The total points that can be obtained is 06 points, two points are given if the ball is positioned inside the ring, and one point if it is positioned a maximum of 0.5 m outside the ring.

- If the examinee gets two points in a ring, he moves directly to serve towards another ring.

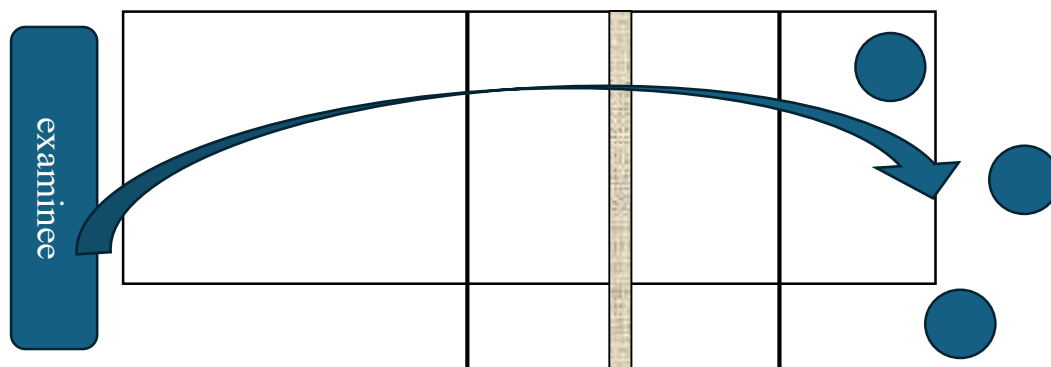


Figure1 : Explains the technical stages of doing the accuracy of serving test

Test 02: Receive the serve from defense zone:

- **Purpose of the test:** Measuring the accuracy of receiving the ball from the defense zone coming directly from a serve.
- **Test description:**
 - After hearing the signal, the serving player sends the ball from above, directing it towards the examinee.
 - The examinee receives the ball from below or above, depending on the direction and height of the ball, with the goal being to direct the ball directly towards the setter.
 - Each examinee is given 09 attempts, 03 attempts for each of the defensive areas in the back area of the field.
 - The attempt is repeated if the ball is out of the range of the examinee area.
 - The total number of points that can be obtained is 6 points. Two points are given if the player succeeds in delivering the ball to the setter, and one point if he directs the ball a maximum of 0.5 m away from the setter.
 - If the examinee gets two points in one area, he moves directly to receive from another area.

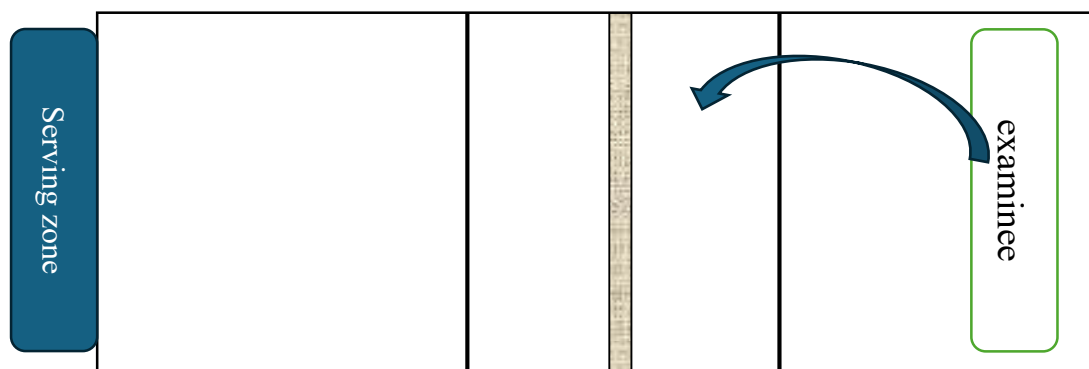


Figure2: Explains the technical stages of doing Receive the serve from defense zone test

Test 03: Setting up the ball after receiving the serve.

- **Purpose of the test:** Measuring the accuracy of setting up after receiving the ball from a legal serve.
- **Test description:**
 - After hearing the signal, the ball is to be served towards the receiving player. The receiver receives the ball and pass it directly towards the examinee who is in the setting zone.
 - The examinee sets the ball for the spiker who in turn performs a spike.
 - Each test subject is given 09 attempts, 03 attempts for a front setting from the right setting zone, 3 attempts for a middle setting, and 3 attempts for a back setting from the left setting zone.
 - The total points that can be obtained is 06 points, two points are given if the examinee has a correct setting and the spiker has a correct spike, and one point is given if the examinee has a correct setting but it is out of reach of the spiker which results in him not being able to spike.

- If the examinee gets two points in one area, he moves directly to set from another area.

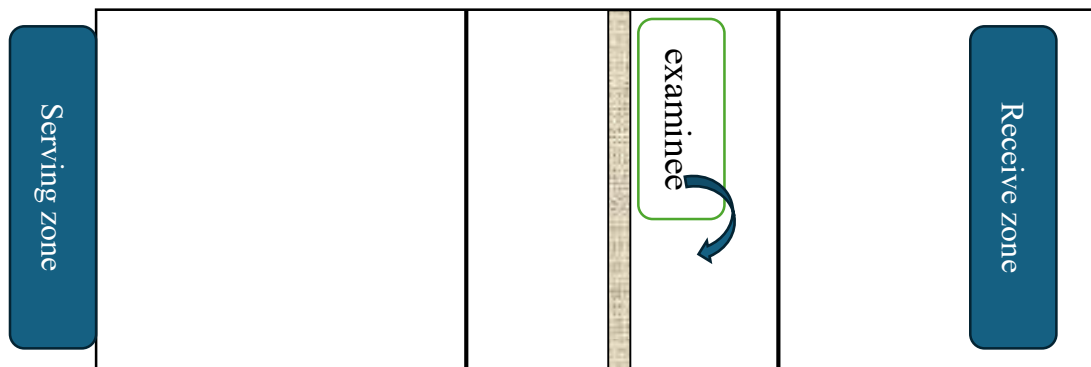


Figure3: Explains the technical stages of doing Setting up the ball after receiving the serve test

Test 04: Front Zone spike:

- **Purpose of the test:** Measuring the spiking accuracy from the offensive zone
- **Test description:**
 - 03 rings are placed in different places in the defensive zone.
 - The examinee determines the ring to which he will direct the spike to.
 - After hearing the signal, the ball to be served towards the receiving player. The receiver receives the ball and pass it directly towards the setter who will set the ball to the examinee who performs spike, trying to direct the ball towards the rings.
 - Each examinee is given 09 attempts, 03 attempts to spike from the right side, 03 attempts to spike from the middle side, and 03 attempts to spike from the left side.
 - The total points that can be obtained is 06 points. Two points are given if the examinee performs a correct spike and the ball is positioned inside the ring, and one point is given if the examinee performs a correct spike and the ball is positioned a maximum of 0.5 m outside the ring.
 - If the examinee scores two points in one area, he moves directly to spike from the other area.

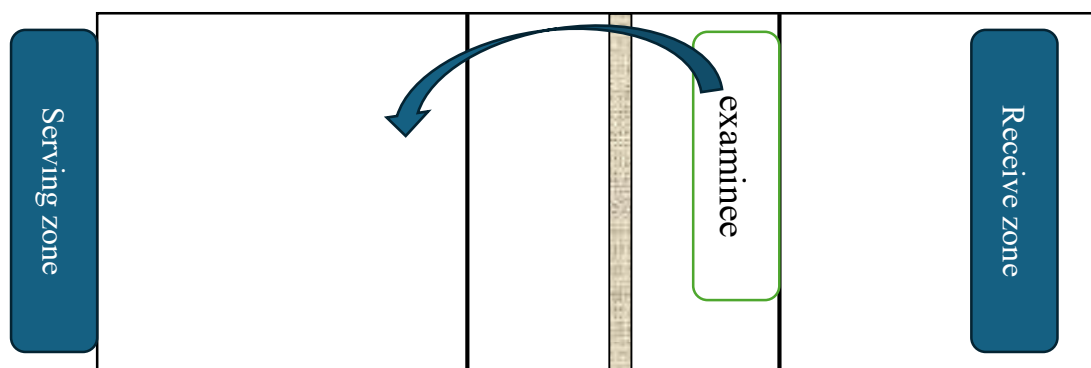


Figure4: Explains the technical stages of doing the Front Zone spike test

Table (05) : Tests Evaluation Criteria

Points	Below average	Average	good	Very good	Excellent
Scores	>03	03	04	05	06

08. The educational program:

The educational program was applied over a period of 10 weeks, with two sessions per week, each session lasting 50 minutes. The educational units were built on the principles of pragmatic philosophy, which states that knowledge can only be acquired through experience and experimentation. Knowledge formation within the pragmatic approach is through the exploratory method or the problem-solving method. Therefore, the basic principle in the applied educational program is to give the main objective of the lesson, to give the expected output of the learner to reach it, to provide various means and tools to the learners and to leave the freedom for the learner to carry out the activity and try to solve the problem before him, which is to reach the optimal performance and achieve the goal through trying and repetition, knowing the weaknesses and strengths in his performance, and trying to correct it through feedback of all kinds.

The following table shows the division of educational program objectives and educational activities on the classes

Table (05) shows the educational program content

WEEK	FIRST LESSON		SECOND LESSON	
	purpose	content	purpose	content
WEEK 01	A theoretical lesson contains history of the game, various tournaments, basic law, rules of arbitration			
WEEK 02	Improve Serve-Receive + Setting	Situations of Improving Serve-Receive + Setting	Improve Setting + Spike	Situations of Improving Setting + Spike
WEEK 03	Improve Serve-Receive + Setting	Situations of Improving Serve-Receive + Setting	Improve Setting + Spike	Situations of Improving Setting + Spike
WEEK 04	Improve Serve-Receive + Setting	Situations of Improving Serve-Receive + Setting	Improve Setting + Spike	Situations of Improving Setting + Spike
WEEK 05	Improve Serve-Receive + Setting	Situations of Improving Serve-Receive + Setting	Improve Setting + Spike	Situations of Improving Setting + Spike
WEEK 06	Improve Serve-Receive + Setting + Spike	Situations of Improving Serve-Receive + Setting + Spike	Improve Serve-Receive + Setting + Spike	Situations of Improving Serve-Receive + Setting + Spike
WEEK 07	A theoretical lesson contains physical and skill requirements of the game, common injuries and how to treat them.			
WEEK 08	Improve Serve-Receive + Setting + Spike	Situations of Improving Serve-Receive + Setting + Spike	Improve Serve-Receive + Setting + Spike	Situations of Improving Serve-Receive + Setting + Spike
WEEK 09	Compound Improvement of all skills	Compound Situation of Serve-Receive+Setting + Spike with Progression	Compound Improvement of all skills	Compound Situation of Serve-Receive+Setting + Spike with Progression
WEEK10	Compound Improvement of all skills	Compound Situation of Serve-Receive+Setting + Spike with Progression	Compound Improvement of all skills	Compound Situation of Serve-Receive+Setting + Spike with Progression

09. Tests standardization :

Table(06) shows the results of the reliability tests

Tests	Spearman Correlations	P-value
accuracy of serving	0.590*	0.021
Receive the serve from defense zone	0.828**	0.000
Setting up the ball after receiving the serve	0.777*	0.001
Front Zone spike	0.716**	0.003

Note: * : significant at the 5% level / ** : significant at the 1% level / (N=10)

Through the table, we see that the tests have a good degree of reliability, after the results showed that there is a statistically significant correlation between the results of the pre and posttests.

03 - Presentation and Analysis of Results:

1st hypothesis: The educational program has an effect on improving Serve-receive competence of the study sample

Table(07) shows the results of the Wilcoxon signed-rank of the 1st hypothesis
“accuracy of serving test results”

Groups	M	SD	Z value	Sig
control group (pre-test) & control group (post-test)	1.53 2.60	1.060 0.828	2.873	0.004
experimental group (pre-test) & experimental group (post-test).	2.33 3.67	0.816 1.234	3.134	0.002
experimental group (post-test) & control group (post-test)	3.67 2.60	0.828 1.234	2.676	0.007

Note : Sig level : 0.05

Through the results of the table, we see that there are statistically significant differences between the pre-test and the post-test for the control sample with regard to accuracy of serving test, where the value of Z came **2.873** with (P-value=0.004 < Sig level=0.05) and, returning to the arithmetic means, we see that the mean of the post-test reached **2.60** while the mean of the pre-test was **1.53**, therefore, the differences are in favor of the post-test, and accordingly, it can be said that the traditional program improved the skill quality to be measured, which is serving, at the same time, Z value for the experimental group reached **3.134** with (P-value=0.002 < Sig level=0.05) and returning to the arithmetic means, we see that (post-test= **3.67** > pre-test= **2.33**), and from it, the proposed educational program had an effect on improving the skill quality to be measured.

However, by comparing the results of the two post-tests of the experimental group and the control group, we find that the value of Z reached **2.676** with (P-value=0.007 < Sig level=0.05). which means that there are statistically significant differences between the two tests, based upon, and by returning to the arithmetic means,

we find that (experimental group post-test mean=**3.67**) meanwhile (control group post-test=**2.60**). Therefore, it can be said that the improvement rate in the accuracy of serving was in a better degree for the experimental group that underwent the proposed educational program with statistically significant differences.

Returning to the test evaluation criteria, we note that the experimental group's average performance was between **1.50** and **2.60**, which are scores corresponding to a "below average" evaluation. However, it moved to an "average" evaluation after the performance improved from a value of **2.33**, which corresponds to a "below average" evaluation, to a value of **3.67**.

2nd hypothesis: The educational program has an effect on improving Passing competence of the study sample.

Table(08) shows the results of the Paired Samples t-test of the 2nd hypothesis
Receive the serve from defense zone test results

Groups	M	SD	T value	df	Sig
control group (pre-test) & control group (post-test)	3.60 4.33	0.986 0.976	4.785	14	0.000
experimental group (pre-test) & experimental group (post-test).	3.67 4.40	1.113 1.121	3.556	14	0.003
experimental group (post-test) & control group (post-test)	4.33 4.40	0.976 1.121	0.141	14	0.890

Note : Sig level : 0.05

Through the results of the table, we see that there are statistically significant differences between the pre-test and the post-test for the control sample with regard to Receive the serve test, where the value of T came **4.785** with (P-value=0.000 < Sig level=0.05) and returning to the arithmetic means, we see that the mean of the post-test reached **4.33** while the mean of the pre-test was **3.60**, therefore, the differences are in favor of the post-test, and accordingly it can be said that the traditional program improved the skill quality to be measured, which is Receive the serve, the same for the experimental group, where the value of T reached **3.556** with (P-value=0.003 < Sig level=0.05) and returning to the arithmetic means, we see that (post-test= **4.40** > pre-test= **3.67**), and from it, the proposed educational program had an effect on improving the skill quality to be measured.

However, by comparing the results of the two post-tests of the experimental group and the control group, we find that the value of T reached **0.141** with (P-value=**0.890** > Sig level=0.05)., which means that there are no statistically significant differences between the two tests,

Returning to the test evaluation criteria, we find that both groups in the pre-test had an average Receiving between **3.60** and **3.67**, which are the scores corresponding to the value "average", meaning that the sample level in the pre-tests was average in the skill under study. We note in the post-tests that the average Receiving process was between **4.33** and **4.40**, which are the scores corresponding to the value "good", meaning that the sample level in the post-tests was good in the skill of receiving, and this was after applying the two programs.

3rd hypothesis: The educational program has an effect on improving Setting competence of the study sample.

Table(09) shows the results of the Wilcoxon signed-rank of the 3rd hypothesis
Setting up the ball after receiving the serve test

Groups	M	SD	Z value	Sig
control group (pre-test) & control group (post-test)	<u>4.07</u> 4.27	<u>1.280</u> 1.223	1.134	0.257
experimental group (pre-test) & experimental group (post-test).	<u>4.47</u> 4.53	<u>1.302</u> 1.506	0.577	0.564
experimental group (post-test) & control group (post-test)	<u>4.53</u> 4.27	<u>1.223</u> 1.506	0.435	0.663

Note : Sig level : 0.05

We notice from the table that all the statistical values of the test came with a P-value greater than the significance level of **0.05** (P-value > Sig level = 0.05), which means that there are no statistically significant differences between the two groups, whether experimental or control, in the level of performance in the skill under study, which is the setting skill. We also notice that even when comparing the two post-tests of the two samples, the statistical value of the test came **0.435** with a p-value of **0.663** greater than the significance level of **0.05**, which means that there are no statistically significant differences between the two groups after applying the educational program.

However, when we return to the evaluation criteria of the test, we find that the level of performance, whether in the pre-tests or the post-tests, was between the value **4.07** and the value **4.53**, which are the grades corresponding to the evaluation “good.”

4th hypothesis: The educational program has an effect on improving spiking competence of the study sample.

Table(10) shows the results of the Paired Samples t-test of the 4th hypothesis
the Front Zone spike test results

Groups	M	SD	T value	df	Sig
control group (pre-test) & control group (post-test)	<u>1.60</u> 2.13	<u>1.549</u> 1.187	2.070	14	0.038
experimental group (pre-test) & experimental group (post-test).	<u>1.67</u> 2.80	<u>1.175</u> 1.265	4.795	14	0.000
experimental group (post-test) & control group (post-test)	<u>2.13</u> 2.80	<u>1.187</u> 1.265	1.414	14	0.182

Note : Sig level : 0.05

Through the results of the table, we see that there are statistically significant differences between the pre-test and the post-test for the control sample with regard to Front Zone spike test, where the value of T came **2.070** with (P-value=0.038 < Sig level=0.05) and returning to the arithmetic means, we see that the mean of the post-test reached **2.13** while the mean of the pre-test was **1.60**, therefore, the differences are in favor of the post-test, and accordingly it can be said that the traditional program improved the skill quality to be measured, which is spiking. The same for the experimental group, where the value of T reached **4.795** where (P-value=0.000 < Sig level=0.05) and returning to the arithmetic means, we see that (post-test= **2.80** > pre-test= **1.67**), and from it, the proposed educational program had an effect on improving the skill quality to be measured.

Although, by comparing the results of the two post-tests of the experimental group and the control group, we find that the value of T reached **1.414** with (P-value=**.0181** > Sig level=0.05)., which means that there are no statistically significant differences between the two tests.

04 – Discussion:

The role and objectives of physical and sports education extend far beyond mere recreation or leisure activities. It is imperative to consider the comprehensive development of learners, encompassing physical, skill-based, social, and psychological dimensions. As noted by Tristan L. Wallhead, physical education holds significant potential in fostering youth physical activity. By implementing physical education-based programs designed to promote physical activity, these initiatives have effectively increased out-of-school physical activity through the application of a pedagogical framework that targets motivation-related variables. (Tristan & Buckworth, 2004), Senlin Chen and others concluded that physical education (PE) has a positive impact on increasing daily moderate-to-vigorous physical activity (MVPA) while reducing daily sedentary behavior among youth. Active engagement in PE classes enhances the likelihood of maintaining higher levels of physical activity and reducing sedentary time outside of PE sessions. (Senlin, Youngwon, & Gao, 2014), Moreover, Llorrente-Cantarero and Gil Lozano (2020) found that students who engage in physical activities achieve better outcomes in terms of cardiorespiratory fitness and body mass index (BMI) compared to their sedentary peers. Similarly, Salas-Sanchez and colleagues (2020) highlight the importance of implementing interventions to organize students' free time to incorporate more physical activities, emphasizing their role in enhancing the overall school environment. (Salas-Sanchez, Muntaner-Mas, & Vidal-Conti, 2020), From a social perspective, González J and colleagues (2019) underscore the significant role of physical education in fostering prosocial behavior and facilitating changes in the components of emotional intelligence among study participants. Furthermore, they highlight that physical education provides an effective avenue for cultivating aspects of a prosocial personality through activities integrated into its teaching framework. (González, Cayuela, & López-Mora, 2019), The practice of physical education can also contribute to reducing levels of aggressiveness. (Pino-Juste, Portela-Pino, & Soto-Carballo, 2019), Additionally, the positive correlation between the practice of physical education and improvements in mental health. (Nixdorf, Beckmann, Oberhoffer, Weberruß, & Nixdorf, 2021)

First and foremost, it is important to highlight that the city of El Kantara, where the study was conducted and from which the research sample was drawn, is considered a historically significant hub for volleyball. This sport is widely practiced by individuals of all ages within the city and is the most prevalent recreational activity among children, adolescents, and young people. Furthermore, an analysis of the equivalence tables for the two research groups in the tests reveals a significant parity in performance levels regarding the sport's skills among the learners in both groups, it is also observed that the learners demonstrated a good level of performance in the pre-tests. This was further confirmed during the implementation of the program and its instructional activities, as learners exhibited a strong proficiency in acquiring the fundamental skills associated with the sport, including the technical aspects of these skills. This suggests that the experimental group entered the educational program with prior knowledge and pre-acquired competencies related to the practiced activity, which can be classified as ranging from satisfactory to good. This observation is further supported by the arithmetic means recorded in the tests, referring back to receive the serve test, it was observed that both groups initially recorded an average score of 3.6 out of 6, indicating that more than

half of the reception attempts in the pre-test were successful. In the post-tests, both groups showed improvement, with the average number of successful receptions exceeding 4.3 out of 6, meaning that over 70% of the receptions were performed correctly. This reflects the strong initial skill level of both groups in this particular skill, facilitating a smooth improvement process. Consequently, no statistically significant differences were found in the final performance levels between the two groups. However, it is important to note that both groups demonstrated statistically significant differences between their pre-test and post-test results.

A similar trend was observed in the setting test, where both groups initially demonstrated a good level of proficiency in this skill, with more than 4 out of 6 successful setting attempts recorded in the pre-tests. This performance further improved, with the experimental group reaching an average of more than 4.5 out of 6 in the final stage. As a result, no statistically significant differences were found between the two groups in the final performance, which can be attributed to the strong initial skill level with which both groups entered the study.

The setting skill, or overhead pass, is widely recognized as one of the most fundamental and frequently used skills in volleyball. It is often the first technical skill encountered by learners engaging in the sport. Consequently, the continuous exposure to this skill among students contributed to their progressive improvement, ultimately leading to its full acquisition. As a result, the instructional activities within the educational program were unable to introduce substantial new learning experiences or further enhance students' performance in this skill beyond their existing level.

Regarding the spiking skill, which is considered one of the most technically demanding and complex skills in volleyball, it was observed that learners in both groups entered the study with a basic proficiency level, recording an initial average of 1.6 out of 6, meaning that only 26% of total spike attempts were successful. This performance improved in the post-tests, reaching an average of 2.8 out of 6, equivalent to 46% successful spike attempts, with statistically significant differences in favor of the post-test. However, no statistically significant differences were found between the post-test results of the two groups, which can be attributed to the similarity in their skill levels.

The control group achieved a post-test average of 2.13 out of 6, meaning that 35% of their spike attempts were successful. This modest improvement in learners' spiking abilities can be explained by the fact that mastering this skill requires various morphological and physiological capabilities, which demand extensive training. As the study of Abdullah confirmed the correlation between explosive strength in both the upper and lower limbs, reaction time, and spiking skill in volleyball. (Abdullah, 2021) Meanwhile, a study by Ait Wazo and Nasser highlighted the importance of predicting offensive skills based on morphological measurements, particularly height, weight, and body mass index (BMI). (Ait Wazo & Nasserbay, 2023)

Given the limited duration of the program, it was insufficient to fully develop all the necessary competencies. Consequently, the instructional activities within the program relied on composite drills integrating multiple skills (such as reception and setting) to simulate real-game situations and enhance adaptability.

The exposure of the experimental group to six training situations specifically focused on the spiking skill was sufficient to enhance learners' performance from 26% to 46%, representing a 20% improvement over approximately three months. This suggests that an

additional three months of practice could potentially lead to a further 20% improvement, enabling learners to achieve a performance accuracy exceeding 60% in executing the skill correctly.

Referring back to the serving test, the experimental group's average performance improved from 2.33 out of 6 to 3.67 out of 6, reflecting an increase in successful serves from 38% to 61% in the post-test. This improvement resulted in statistically significant differences in favor of the post-test performance of the experimental group.

This progress can be attributed to the learners' exposure to six out of ten sessions specifically targeting the serving skill, with a gradual increase in difficulty. Learners practiced serving in nearly every session and in various game situations involving passing, setting, and receiving, in addition to dedicated serving drills. This frequent repetition allowed learners to refine their execution through continuous visual and self-feedback, enhancing their technical performance in serving—a crucial offensive technique for scoring points in volleyball. A study by Arabi and Aqzouh, titled *The Effect of a Proposed Educational Program Based on Feedback to Develop Certain Skills in Volleyball for Middle School Students*, confirmed the positive impact of feedback on the acquisition of motor skills. The results showed statistically significant differences between the control and experimental groups, with the experimental group—which utilized feedback—demonstrating greater improvement in motor skill development. (Arabi & Aqzouh, 2023)

Furthermore, the instructional situations incorporated a variety of serving positions, including short-distance serves from three meters, medium-range serves from six meters, and long-distance serves from the nine-meter line. This approach enabled learners to adapt to different net heights and distances while improving their accuracy in ball placement.

05 – Conclusion

Through results analysis and interpretation, we concluded that the physical and sports education program prepared according to pragmatic theory on the development of fundamental Volleyball Motor Skills among high school students, this was done by first ensuring the presence of statistically significant differences between the pre-test and post-test for the experimental group in the skills under study. Then, this was verified by referring to the evaluation criteria and determining the improvement percentages in performance. Following that, a comparison of the results between the experimental and control groups was conducted. It was observed that 3 out of 4 skills showed statistically significant improvements in favor of the post-test, with good improvement percentages when referred back to the evaluation criteria, while it is worth noting the importance of quality in the teaching process, especially physical and sports activities, and trying to build programs that are in line with the reality of sports practice in the school in order to reach the student to the desired changes either in his personality or in his body.

Notes :

1. It should be noted that the current study was conducted on the activities of relay running and volleyball.
2. It should be noted also that the educational program contained the skill competencies of the activities practiced, measured through skill performance tests for the basic skills

of the practice activities, prepared by the researchers, as well as the physical competencies (by acquiring elements of physical fitness related to the practiced activities), social aspect represented in measuring the level of social interaction through the application of the social interaction scale.

3. the research paper in our hands only dealt with the skill competencies.

06 – Acknowledgments

The research team would like to extend its sincere thanks to the Director of the Secondary School, Mr : Zrigui Yaakoub for providing full support for the project and opening the doors of the institution to carry out the study from the beginning of its stages until its completion, and providing us with sufficient technical information about the sample and harnessing all means in order to ensure the good conduct of the research process.

07 – Conflict-of-interest

The authors certify that they have No Conflict of Interest to declare in the subject matter or materials discussed in this manuscript.

08 – References:

1. Abd-Al_Hamid, S. (2014). *Planning in physical education*. Cairo: Book Center for Publishing.
2. Abdullah, I. A. (2021). he Relationship Between Explosive Strength and Speed of the Upper and Lower Limb Muscles, Reaction Time, and Accuracy of Spiking in Volleyball. *Al-Bahith Journal for Sports and Social Science*, 1(4), 1-14. Récupéré sur <https://asjp.cerist.dz/en/article/142038>
3. Ait Wazo , M., & Nasserbay, K. (2023). The prediction of offensive skills based on certain morphological measurements among volleyball players (14-15 y.o). *The Algerian Journal of Research and Studies*, 6(3), 273-292. Récupéré sur <https://asjp.cerist.dz/en/article/230291>
4. Al-Aoun, I. (2017). *The foundations of physical and sports education*. Amman: Dar Shahrazad for publication and distribution .
5. Arabi, C., & Aqzouh, S. (2023). The Effect of a Proposed Educational Program Based on Feedback to Develop Certain Skills in Volleyball for Middle School Students. *journal Tafawuq in the Sciences and Techniques of Physical and Sports Activities*, 8(1), 1573-1591. Récupéré sur <https://asjp.cerist.dz/en/article/225580>
6. Ata-Allah, A., Zitouni, A.-A., & Ben_Quannab, A. (2009). *Teaching physical and sports education in the light of procedural goals and competencies approach*. Algiers: University Publications Office.
7. Bahri, S., & Kharmouch, M. (2017). Obstacles to the application of the competencies approach in light of the reality of the Algerian school from the point of view of primary school teachers. *Journal of the development of social sciences*, 10(2), 296-321.
8. Brahimi, M., & Behnas, B. (2017). Obstacles to the application of the competencies approach in teaching physical sciences and technology in the middle school stage An exploratory field study in the middle schools of the city of Massaad state of Djelfa. *Journal of the development of social sciences*, 10(2), 322-341.

9. Elsamman, M. (2014). Based on the Pragmatic Theory to Develop Grammatical Structure Comprehension Skills for Foreign Learners of Arabic. *education*, 134(4), 529-536.
10. González, J., Cayuela, D., & López-Mora, C. (2019). PROSOCIALITY, PHYSICAL EDUCATION AND EMOTIONAL INTELLIGENCE IN SCHOLL. *Journal of Sports and Health Research*, 11(1), 17-32. Retrieved from <https://recyt.fecyt.es/index.php/JSHR/article/view/80845>
11. Hazhazi, K. (2010). *Obstacles to the application of teaching according to the pedagogy of the competencies approach in the physical and sports education class*. Biskra : Mohamed Khider University.
12. Khafaja, M., & Shaltout, N. (2007). *Teaching methods in physical education*. Alexandria: Dar Al-Wafa for the world of printing and publishing.
13. Mohamad, A. A.-A. (2016). *Physical education: foundations - concepts*. Amman: Arab Society Library for Publishing and Distribution.
14. Nixdorf, R., Beckmann, J., Oberhoffer, R., Weberruß, H., & Nixdorf, I. (2021). ASSOCIATIONS BETWEEN PHYSICAL FITNESS AND MENTAL HEALTH AMONG GERMAN ADOLESCENTS. *Journal of Sports and Health Research*, 13(1), 125-138. Récupéré sur <https://recyt.fecyt.es/index.php/JSHR/article/view/87377>
15. Pino-Juste, M. R., Portela-Pino, I., & Soto-Carballo, J. (2019). ANALYSIS BETWEEN AGGRESSION INDEX AND PHYSICAL ANALYSIS BETWEEN AGGRESSION INDEX AND PHYSICAL. *Journal of Sports and Health Research*, 11(1), 107-116. Retrieved from <https://recyt.fecyt.es/index.php/JSHR/article/view/80852>
16. Salas-Sanchez, M. I., Muntaner-Mas, A., & Vidal-Conti, J. (2020). Education Intervention during recess time at a school in order to improve aspects related to health and well-being of the student body. *Journal of Sports and Health Research*, 12(Supl2), 127-136. Récupéré sur <https://recyt.fecyt.es/index.php/JSHR/article/view/80811>
17. Salim, M., Mina, F., & Shahata, H. (2013). *Curriculum construction and planning*. Amman: Dar Al-Fikr for publication and distribution.
18. Senlin, C., Youngwon, K., & Gao, Z. (2014). The contributing role of physical education in youth's daily physical activity and sedentary behavior. *BMC Public Health*, 14(1), 1 - 7. doi:<https://doi.org/10.1186/1471-2458-14-110>
19. Sharma, S. D. (2018). Pragmatism in education. *International Journal of Engineering Technology Science and Research*, 5(1), 1549-1554.
20. Tristan, L., & Buckworth, J. (2004). The Role of Physical Education in the Promotion of Youth Physical Activity. *Quest*, 56(3), 285-301. doi:10.1080/00336297.2004.10491827