



THE EFFECT OF APPLYING THE STRATEGY OF EDUCATIONAL SCIENTIFIC PILLARS ON THE LEVEL OF PERFORMANCE OF SOME HANDBALL SKILLS AMONG PLAYERS MISAN UNIVERSITY

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A B S T R A C T

The aim of the research is to identify the effectiveness of the educational scientific pillars on the level of performance of some handball skills among players Misan University. To achieve the research objectives, the study employed the experimental method and utilised a quasi-experimental design involving two comparable groups. The first group, referred to as the control group, received traditional instruction, while the second group, referred to as the experimental group, was taught using the educational pillars strategy. The research sample comprised 30 students from the second phase. These students were intentionally selected to ensure equivalence, considering factors such as chronological age, height, and weight and proficiency. They were then evenly divided into two groups: an experimental group and a control group. The teacher's handbook included a representation of research tools for the implementation of the educational pillar's strategy. These tools consisted of an achievement test to assess the level of performance in handball skills among players, as well as a skills test. The experiment was implemented during the initial semester of the academic year (2021/2022) by the researchers. The experimental group was instructed using the educational pillars strategy, whereas the control group followed the conventional method of studying. The experimental and control research groups underwent the application of the scrolling and receiving, dribbling, and shooting from stability skill test. Subsequently, the data required for statistical analysis and access to results were obtained. The findings indicated that there were statistically significant disparities in the average scores of the experimental group and control group regarding the proficiency level of certain handball skills among the players. Significant statistical differences were observed in the mean scores of the two groups in relation to the skills of scrolling and receiving, dribbling, and shooting from stability skill. The magnitude of these differences was determined by assessing the effectiveness of the educational pillar's strategy. The findings indicate that the implementation of the educational pillar's strategy has a substantial

K E Y W O R D S

Applying, Strategy, Scientific, Pillars, Handball

impact on the performance level of certain handball skills among players of Misan University.

Introduction

Educational institutions are widely regarded as a crucial factor in shaping the future, rendering education a pivotal strategy for societal advancement. It is worth noting that educational technology has undergone significant evolution, beyond mere acquisition of modern devices, to align with contemporary developments (Zhuang & Liu, 2022). Numerous scientific studies have suggested that the most effective teaching methods can be achieved through the strategic utilisation of modern innovations and educational technology, rather than the mere addition of new educational materials, programs, or tools (Mora et al., 2020). The primary objective of these studies is to enhance the quality of education and promote positive outcomes for learners (Hebebci, Bertiz & Alan, 2020). Physical education curricula and activities are predominantly focused on practical application (Cassar et al., 2019). As such, educational techniques that utilise visual and audio aids, tools, and equipment play a crucial role in emphasising the distinct components of movement (Aartun et al., 2022). These techniques also enhance the enjoyable and engaging aspects of the teaching process, which ultimately leads to increased learner attention and improved acquisition of physical education curricula activities (Barba-Martín et al., 2020). The educational pillars approach is an educational system that prioritises the active engagement, mobility, and interactivity of learners in educational contexts (Çakmak, 2022). This approach tailors' educational activities and resources to the learners' abilities, readiness, and prior knowledge, with the ultimate goal of meeting their educational needs and enhancing their motivation towards learning (Archambault, Leary & Rice, 2022). Thus, increasing their experiences and developing their skills and abilities, and the concept of educational pillars is based on providing the temporary assistance that the learner needs, and the assistance may be in the form of hints or indicative information with the goal of providing him with some skills and abilities that enable him to continue his learning, after which he is left to complete the remainder of his learning independently, relying on his own abilities to continue his education (Lamrani & Abdelwahed, 2020). According to Pillar's (2021) assertion, the educational pillars' approach emphasises providing learners with temporary support through a variety of activities and programs, after which they are expected to complete the remainder of their learning independently. According to Efthymiou and Zarifis (2021), the strategy of educational pillars is one of the applications of the social constructivist theory developed by the Russian-born psychologist "Vygotsky," which is one of the learning theories that emphasise the cooperative activity of the learner, who builds his knowledge by himself, and with the assistance of others more experienced, as learning and knowledge building occur through the process of communication and social interaction. The educational pillars strategy seeks to facilitate the learner's ability to establish connections between their prior knowledge and the current educational context (Archambault, Leary & Rice, 2022). It also aims to equip the learner with the necessary skills to effectively evaluate ideas, utilise available resources to address and navigate various situations, and ultimately achieve novel outcomes that contribute to their overall learning experience (Drigas & Mitsea, 2021). Additionally, this approach emphasises the cultivation of independence and self-sufficiency throughout the educational process (Bansal et al., 2022). According to Jawad, Raheem, and Majeed (2021), the educational pillars strategy is characterised by a collaborative approach to

problem-solving among students, with the guidance of the teacher or mutual assistance among peers in an educational context. There are numerous methods for the educational pillars that are employed in education, such as segmentation, audiovisual media, feedback, the use of questions and recommendations, and audiovisual media (Klingenbergs et al., 2020). Basic skills in handball are motor vocabulary with different duties, which are performed within the framework of the rules of the game, with or without a handball, and proficiency in the various forms of basic skills is one of the factors that contribute to success and superiority in handball (Hidayat et al., 2023). Hidayat et al. (2022) notes that teaching basic skills and advancing the level of skill performance must take into account the expansion of the base of basic skills and the transition from simple movements to complex movements, as well as attention to the cognitive aspect through definition, understanding, and awareness of the game's rules, as well as attention to the evaluation process, in order to reduce time and effort. The researchers point out that modern educational trends in handball modern educational trends in handball necessitate the use of technological methods and methods based on providing a set of typical viewing lessons for skill performance, followed by practical lessons inside the stadium, to be accompanied by discussions, and notes shared by the teacher with the learners in evaluating the educational performance, which is watched using all available educational means such as films, slides, film tapes, audio and video recordings, and the Internet, in terms of cognitive, skill, psychological, and emotional development. Through the scientific and practical experience of researchers and their teaching of a handball course to students in the Faculty of Physical Education and Sports Sciences, the concept of research has crystallized. They observed that there are a number of issues confronting those in charge of teaching, and that these issues are reflected in the instructional strategy employed in the educational process. It is a traditional learning method that relies on the teacher explaining and demonstrating the practical model of the skill to be learned, as well as correcting some technical errors, for a small number of students, without taking into account individual differences between students, despite the effectiveness of the traditional method in certain situations and under certain conditions. However, with the advancement of science, the increase in the number of students, and the development of teaching methods and curricula, they are no longer adequate to accomplish the learning objectives, resulting in a decline in the level of handball skill performance. The researchers, after reviewing the existing literature, realised that there was no investigation into the efficacy of educational pillars as a strategy for teaching handball, so they set out to do so in order to determine whether or not the strategy improved handball performance among students at the College of Physical Education and Sports Sciences.

The Objectives of the Study

The objective of this study is to examine the impact of implementing the educational scientific pillars strategy on the performance level of specific handball skills among the players of the Misan University team.

The Hypotheses of the Study

1. There are statistically significant differences in the level of skill performance of the variables under study between the pre- and post-measurements of the experimental group, in favour of the post-measurement .

2. "There are statistically significant differences in the level of skill performance of the variables under study between the pre- and post-measurements of the control group, in favour of the post-measurement .
3. "There are statistically significant differences between the two-dimensional skill performance measurements of the experimental and control groups, in favour of the experimental group, between the experimental and control groups .

The Areas of the Study

Methodology

Research Methodology and Field Procedures

Research Methodology

The researchers employed the experimental method with two groups, one experimental and the other control, because it was appropriate for the character of this study.

Research Community and Sample

The research sample was selected purposefully from the second-year students of the Faculty of Physical Education and Sports Sciences in the first semester of the academic year 2021/2022, with a total of (60) students. Of the original community, (30) students were selected as a research sample with a proportion of (50%), the number of (20) students was excluded to conduct an exploratory study on them to determine the scientific coefficients (honesty - stability) of the tests under study; therefore, the basic research sample consisted of (30) students divided into two groups, one of which is an experimental group and the other of which is a control group of (15) students.

Homogeneity Of Sample Members:

To assure the moderation of the research sample, the researchers determined the homogeneity of the variables under study using torsion coefficients, as shown in Table (1).

Variables		Unit of Measurement	Control		Experimental		T
			M	SD	M	SD	
Variables Growth	Age	Month	19.25	0.39	19.11	0.44	0.957
	Height	Cm	170.34	4.25	169.87	4.65	0.429
	Weight	Kg	66.57	5.86	67.33	6.06	0.502
Basic Skills	Scrolling And receiving	Number	9.33	2.54	9.73	2.72	2.34
	Dribbling	Second	22.57	4.81	23.09	3.93	2.66
	Shoot From Stability	Degree	5.88	1.33	6.23	1.51	2.69

It is evident from Table (1) that the torsion coefficients for all variables lie between (0.429 and 2.69), i.e., are bounded by three, indicating that the distribution of these variables is moderate.

Equivalence of the two research groups

In the variables under study, equivalence was found between the two experimental research groups - control, for which the moderation of the distribution of the members of the research sample was calculated.

Means and tools of data collection.

1. **Data collection tools**
2. Rustameter device to measure body height in centimeters.
3. Medical scale calibrated to measure weight in kilograms.
4. Computers and CD display.
5. Medical balls Tape measure Colored adhesive tape, stopwatch.
6. Handball and handball balls.

❖ Means of data collection

1. **First: Measuring Growth Rates:** These include (age - height - weight).
2. **Second: Physical Tests:** To identify skill variables and determine the tests that measure these variables, the researchers designed a questionnaire to survey the opinions of experts on determining the most important skill requirements and how to measure them. The form was presented through personal interviews with experts, and the researchers were satisfied with the opinions of eighty percent of the experts to determine technical skills and how to measure them.
3. **Third: Skill Tests:**
 - ❖ Scrolling And receiving.
 - ❖ Dribbling.
 - ❖ Shoot From Stability.

Exploratory study

The exploratory study was conducted from 20-2-2022 to 27-2 2022 on a sample of twenty (20) individuals from the research community and from outside the research sample to determine the following:

1. The suitability of the tests used for the members of the research sample.
2. Conducting scientific transactions (honesty - stability) for the research-involved evaluations.

Scientific Transactions (Honesty - Stability) For the Tests Used

First: Honesty Coefficient

The researchers used the sincerity of differentiation between two groups, one of which is a skillfully distinguished group of (20) college students and the other of which is a non-skillfully distinguished group of (20) students from the research community and outside the basic research sample and calculated the significance of the differences between the results of the two groups in the variables under study.

Second: Stability Coefficient:

To calculate the stability coefficient of the variables under study, the researchers applied the test and reapplied it five days later to the members of the exploratory research sample between 20-2-2022 2022 and 27-2- 2022, and then calculated the simple correlation coefficient between the correlation coefficients between the first and second applications of the survey sample in the skill vs. knowledge matrix.

Table 2: Shows the correlation coefficient and subjective honesty of all tests that enjoyed a high degree of truthfulness.

No	Tests	Honesty Coefficient	Stability Coefficient
1	Scrolling And receiving	89%	93%
2	Dribbling	87%	93%
3	Shoot From Stability	88%	92%

Educational Program Using Educational Pillars

The educational pillars are:

1. Setting educational goals.
2. Analysis of the skill of peaceful dialogue and correction.
3. Determining ways to achieve objectives.
4. Designing the educational program using educational pillars in its initial form. Initial experimentation of the educational program using educational pillars.

First, Goal setting: Using the educational pillars, the researchers have identified the educational program's goals, which include teaching the skills of Scrolling and Receiving, Dribbling, and Shoot from Stability in handball to students at the College of Physical Education and Sports Sciences.

Second: Analysis of the skill of Scrolling and Receiving, Dribbling, and Shoot From Stability:

The researchers analysed the Scrolling and Receiving test, the Dribbling test, and the Shoot From Stability skill test in order to identify the content of each skill from the technical and educational steps, knowledge, and graded exercises for each skill in order to organise the content of the educational units so that the skill can be taught in the shortest amount of time.

Third: Determining ways to achieve goals: The methods for attaining the goals of the educational unit were identified by implementing a series of educational principles, including the use of hypermedia to illustrate the various stages of the skills of scrolling and receiving, dribbling, and shoot from stability, as demonstrated in educational video recordings, still images, as well as the use of cooperative learning in learning skills, feedback, the use of questions, and the most important educational pillar is the presence of the teacher with students during the period of learning skills, in addition to the use of immediate reinforcement, are employed to increase the student's motivation for education.

Fourth: Designing the educational program using educational pillars in its initial form: The educational programme was developed by researchers based on the foundational principles of education. The programme is implemented over a period of six weeks, with two lessons scheduled per week. Each lesson has a duration of 90 minutes. The lesson incorporates one of the fundamental educational components, namely educational software with hypermedia, educational units in the cooperative learning style, and the teacher's utilisation of modelling, verbal explanation, and correction of technical errors. During the lesson, the teacher provided a comprehensive overview of the subject matter by engaging students in stimulating questions and encouraging critical thinking about the various elements of the lesson, the students engaged in collaborative group work, wherein the teacher transferred educational responsibilities to the students. The support previously provided by the teacher

was discontinued, and instead, the student's performance was assessed until mastery of the learning objectives was achieved. Following the transfer of responsibility, the student's level of autonomy increased, allowing them to learn independently without teacher intervention. Furthermore, competitions were organised among the students to foster motivation and encourage skill development. The researchers introduced the educational program's content, initially structured around educational pillars, to a cohort of teaching methodology professors and badminton instructors from the teaching community. In order to assess the validity of the educational pillars, a group of professors specialising in teaching methods and badminton from the faculties of physical education and sports sciences were selected. The purpose of this study was to express an opinion on the effectiveness of the educational pillars and to ensure their reliability:

1. The suitability of the educational pillars in relation to skill development and goal attainment.
2. The efficacy of the educational progression of each unit in attaining learning outcomes within a minimal timeframe. The findings of a survey conducted among experts revealed unanimous consensus (100%) regarding the substance of the proposed educational curriculum.

Fifth: Initial experimentation of the educational program using educational pillars: The researchers conducted a supplementary study involving a subset of 20 students who were not part of the primary research sample and were from a different research community. The study took place from October 14, 2022, to October 18, 2022. The objective of the study was to implement a specific component of the educational programme utilising the foundational principles of education. The results of the study indicated that:

1. Suitable educational pillars to learn the skills of dialogue and peaceful correction and members of the research sample.
2. The importance of feedback by the teacher in correcting technical errors.
3. The fun of learning with educational software with hypermedia. Thus, the content of the educational program using the educational pillars in its final form became applicable to the members of the experimental group.

Main Experience

Pre-Tests

Pre- tests were conducted on the participants belonging to both the experimental and control groups on 28-2-2022, in order to collect data on the variables being investigated.

Apply The Tutorial Using Educational Pillars

The educational programme was implemented on the experimental group over a duration of six weeks. The programme consisted of two educational units per week, with each unit lasting 90 minutes. The instructional materials included computer presentations, illustrative pictures, and practical demonstrations by the teacher, each lasting 15 minutes. Additionally, there was a 15-minute period for physical preparation and readiness, followed by a 55-minute period for the educational and applied activities based on the research's educational pillars. The programme concluded with a 5-minute final segment. In contrast, the control group received instruction using the traditional teaching method during the period from 6-3- 2022, to 8-5- 2022.

Post-tests

The dimensional measurements of the experimental research groups, and namely the control group, were conducted on 10-5- 2022. These measurements were performed on the variables under investigation, following the same order and conditions as the pre-tests.

Statistical Treatments Under Research:

- ❖ Arithmetic means.
- ❖ Standard deviation.
- ❖ The median is a simple correlation coefficient.
- ❖ Test "T".
- ❖ Torsion coefficient.

Results

Presentation and discussion of results:

First: Presentation of results

Table 3: Shows the significance of the differences between the averages of the pre- and post-measurement of the experimental group.

Variables	Unit of Measurement	Pre-Test		Post-Test		T	Sig
		M	SD	M	SD		
Scrolling And receiving	Number	4.11	1.23	5.03	1.34	4.92	0.000
Dribbling	Second	2.14	1.01	3.31	1.09	3.37	0.000
Shoot From Stability	Degree	10.33	2.77	13.31	1.89	5.17	0.000

The analysis of Table 3 reveals that there exist statistically significant disparities between the pre-test and post-test results of the experimental group, specifically in relation to the variables being investigated.

Table 4: Shows the significance of the differences between the averages of the pre- and post-measurement of the control group.

Variables	Unit of Measurement	Pre-Test		Post-Test		T	Sig
		M	SD	M	SD		
Scrolling And receiving	Number	4.11	1.23	5.03	1.34	4.92	0.000
Dribbling	Second	2.14	1.01	3.31	1.09	3.37	0.000
Shoot From Stability	Degree	10.33	2.77	13.31	1.89	5.17	0.000

The analysis of Table 4 reveals statistically significant differences in the variables under investigation between the pre- and post-tests of the control group, namely in the valid post-test .

Table 5: Shows the significance of the differences between the telemetric averages of the experimental and control group.

Variables	Unit of Measurement	Control		Experimental		T	Sig
		M	SD	M	SD		
Scrolling And receiving	Number	5.03	1.34	8.77	1.54	4.53	0.000
Dribbling	Second	3.31	1.09	4.82	1.14	5.92	0.000
Shoot From Stability	Degree	13.31	1.89	16.94	2.12	5.44	0.000

Table (5) shows there are statistically significant differences between the experimental and control groups on post-tests that were valid for the experimental group.

Second: Discussion of the Results:

Discussion of the results of the first hypothesis:

The findings presented in Table 3 indicate that there were statistically significant disparities, at a significant level of 0.05, between the pre- and post-tests of the experimental group in relation to the variables being investigated. These differences favoured the post-measurement. The researchers ascribe the enhancement in the variables being investigated in the experimental group to the efficacy of employing the educational pillars of hypermedia educational software and cooperative learning modules. The enhancement of students' ability to retrieve studied information easily is facilitated through the implementation of various instructional strategies, such as modelling, verbal explanation, and error correction by the teacher. These strategies provide gradual assistance to learners during the learning process, either by the teacher or their peers. Consequently, this fosters continuous interaction within the educational setting, leading to the acquisition, organisation, and retrieval of knowledge. Moreover, the utilisation of educational pillars in teaching helps to address challenges associated with large class sizes and individual differences among students. In the process of enhancing, one's proficiency in dialogue and the ability to effectively transmit and receive information, this finding aligns with the assertion made by Luo, Yang, and Yuille (2021) that the educational pillars' strategy involves employing a variety of teaching methods within educational units to cater to the needs, abilities, inclinations, and levels of learners. This necessitates teachers to streamline and adapt content, as well as diversify teaching methods and learning activities, in order to address the diverse requirements of individual learners and groups, thereby optimising learning opportunities for all students in the classroom. Therefore, it is imperative to prioritise the attainment of favourable educational results, the cultivation of the learner's character, and the commitment to actively pursue educational objectives. This finding aligns with the outcomes reported by Drigas and Mitsea (2021) as well as Ramatov et al. (2022) in their respective investigations on the efficacy of employing educational pillars for the acquisition and proficiency in both theoretical and practical subjects. According to Archambault, Leary, and Rice (2022), the educational pillars encompass the provision of temporary assistance to learners. This assistance can take the form of hints or guidance information, aimed at equipping learners with the necessary skills and abilities to facilitate their ongoing learning. Subsequently, learners are expected to independently pursue the remaining aspects of their learning, relying on their own capabilities to explore new concepts and acquire knowledge. Therefore, the first hypothesis of the study posits that there exist statistically significant disparities between the pre- and post-tests of the experimental group regarding the level of skill performance of the variables being investigated, with a preference towards the post-tests .

Discussion of the results of the second hypothesis:

The results displayed in Table 5 demonstrate that there were statistically significant disparities, at a significance level of 0.05, between the pre and post-tests of the control group with regards to the variables under investigation. The observed enhancements in the aforementioned variables within the control group are ascribed to the beneficial influence exerted by the instructor employing a directive instructional approach. This approach entails the professor verbally elucidating the skill, providing a

precise description thereof, demonstrating a practical model of the skill, and offering ongoing feedback and evaluation throughout the instructional period. Consequently, these instructional strategies collectively contributed to the amelioration of the targeted skills in the study. The findings align with the assertions made by Wollesen et al. (2020) that the conventional approach to acquiring motor skills yields favourable outcomes in terms of both motor and cognitive proficiency. This can be attributed to the active involvement of the teacher, who facilitates the learning process through strategic lesson planning, effective content delivery, assessment of learning outcomes, and the provision of diverse guidance and instructions to rectify technical errors.

Thus, the validity of the second hypothesis of the research, which states:

There are statistically significant differences between the averages of the pre- and post-measurements of the control group in the level of skill performance of the variables under research in favor of the post-test .

Discussion of the results of the third hypothesis:

The findings presented in Table (5) demonstrate that there were statistically significant disparities, with a significance level of 0.05, between the scrolling and receiving, dribbling, and shoot from stability tests of the experimental and control groups in relation to the variables being investigated. These differences were observed in favour of the experimental group . The findings presented in Table (5) indicate that the participants in the experimental group demonstrated greater improvement in the dimensional measurement of the variables under investigation compared to the participants in the control group. The researchers ascribe the superior performance of the experimental group compared to the control group in dimensional measurement to the efficacy of employing educational pillars. The utilisation of educational pillars enables teachers to promptly provide feedback to students, thereby facilitating immediate correction of their learning trajectory. Additionally, the incorporation of educational pillars introduces an element of suspense and autonomy for students, reducing monotony and routine. These factors collectively contributed to the experimental group students' outperformance of their counterparts in the control group across the variables examined in this study. This finding aligns with the findings of Eguchi, Okada, and Muto (2021), who emphasised the effectiveness of incorporating educational pillars in instructional practises to enhance the pace of learning and proficiency in acquired knowledge. These pillars encompass the provision of necessary support to learners, which is facilitated through the utilisation of educational technologies and contemporary teaching methodologies, such as cooperative learning. By employing these strategies, learners are empowered to successfully complete assigned tasks and develop independent learning skills, relying on their own capabilities. This finding aligns with the findings of previous studies conducted by Archambault, Leary, and Rice (2022), Jawad et al. (2021), and Toshqo'zieva, Nurmatova, and Madaminov (2020), which also demonstrated that the utilisation of educational pillars is more effective than traditional methods in facilitating the acquisition and proficiency of theoretical and applied subjects.

Thus, the validity of the third hypothesis of the research, which states:

There are statistically significant differences between the scrolling and receiving, dribbling, and shoot from stability tests of the experimental and control groups in the level of skill performance of the variables under research in favor of the experimental group .

Conclusions

1. The implementation of the educational pillar's strategy, which involves the utilisation of educational software with hypermedia and educational units in a cooperative learning style, has been found to have a statistically significant positive impact, at a significance level of 0.05, on the level of skill performance in the sport of handball.
2. Increasing the effectiveness of the educational pillar's strategy in the context of command-based learning methods, specifically in relation to the enhancement of skill performance levels in the sport of handball.
3. The telemetry data collected from the experimental group, which received educational pillars, demonstrated higher rates of improvement compared to the control group, which received traditional learning, in terms of skills performance in handball.

Recommendations

Based on the findings and conclusions, the researcher proposes the following recommendations:

1. The present study focuses on the implementation of the educational pillars strategy and its impact on enhancing handball skills among students enrolled in the College of Physical Education and Sports Sciences at Misan University.
2. Training faculty members and their assistants in the educational pillar's strategy for teaching handball abilities to students in the faculties of physical education and sports sciences.
3. Introducing the strategy of educational pillars in the terminology of the teaching methodologies course in faculties of physical education and sports sciences, along with a description of its benefits and implementation steps.
4. Students in the faculties of physical education and sports sciences should be taught the various aspects of handball skills using the most effective teaching methods, as determined by additional scientific research in the field of education.

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