The Impact of Educational Media (Visual - Mixed) on Self-Learning of Certain Table Tennis Skills for Students

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Abstract

The researchers adopted the experimental method, using a sample of 27 students from the College of Physical Education and Sports Sciences at Al-Muthanna University for the academic year 2023-2024. The sample was divided into three groups: two experimental groups (visual and mixed) and a control group. The research instruments included questionnaires, performance evaluation forms, and personal interviews with experts in the field. The experiment was conducted over 12 educational units, with the post-test carried out to assess the effectiveness of each method.

The results indicated significant differences in the post-test scores between the three groups, favoring the mixed group that used visual and auditory educational media. This group showed the highest level of skill development, followed by the visual group. The control group, which used the traditional directive method, showed the least development in skill performance. The study concluded that the use of self-learning methods, particularly with mixed educational media, is effective in enhancing the learning process and achieving better outcomes in acquiring motor skills. The researchers recommend incorporating self-learning methods and educational media into the curriculum for physical education and sports sciences, and encourage further research on the impact of various educational techniques on learning different sports skills.

Keywords: self-learning, educational media, table tennis skills, visual media, mixed media, motor skill development.

Introduction:

Educational methods and techniques have long relied on directive teaching methods in our country, where the teacher, with their capabilities, is considered the primary source of knowledge. This is still the case today. Consequently, those

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responsible for the educational process have sought various methods and techniques aimed at developing education. One of these methods is self-learning, which makes learners excited about learning and highlights individual differences among students. There are several methods for self-learning, such as learning kits, programmed learning, computers, and video presentations, where the skill intended to be learned is demonstrated using visual and mixed educational media to convey knowledge to learners effectively. These techniques play a vital role in activating the educational process, deepening the effects of education, and achieving the desired educational impact.

Educational media has become an indispensable necessity in the educational process, especially for learning some complex skills. Through these media, learners can learn in less time and with less effort. They also help provide feedback through observation and repetition.

The significance of this research lies in understanding the importance of using the self-learning method through educational media in the learning process, particularly by observing visual and mixed media via video.

Research Problem:

Many researchers and specialists in the field of sports learning emphasize the necessity of using modern and varied methods in teaching physical education to raise learners' levels. There is no single teaching method or style that is preferred over others since the choice depends on the teacher, the available resources, and the learners' levels. Therefore, it is essential for successful teachers to possess the necessary teaching skills and the prior steps to achieve the desired goal. From the researchers' experience as instructors over several years, they noticed a lack of attention to modern teaching methods. Sometimes, teaching is conducted randomly and without planning. Thus, the researchers concluded, after research and analysis, the need to adopt modern methods and the use of self-learning techniques combined with educational media (visual-mixed) and feedback to increase learning opportunities, especially in sports games, and to understand the impact of using self-learning techniques with educational media to achieve better learning outcomes and optimal utilization of time and effort in learning some table tennis skills among students.

Research Objectives:

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1. To understand the effect of self-learning on acquiring certain table tennis skills for the two experimental groups.

2. To identify the best educational medium for self-learning in acquiring certain table tennis skills among students.

Research Hypotheses:

1. There are differences between the pre- and post-tests for certain table tennis skills among the three groups.

2. There are differences between the three groups in the post-tests, favoring the second experimental group that used self-learning with mixed educational media.

Research Fields:

- Human Field: A sample of third-year students from the College of Physical Education and Sports Sciences, Al-Muthanna University, for the academic year 2023-2024.
- Time Field: From November 23, 2023, to April 25, 2024.
- Place Field: The sports hall at the College of Physical Education and Sports Sciences, Al-Muthanna University.

Research Methodology:

The research problem required the researchers to use the experimental research method, which involves a controlled and systematic change in the conditions affecting a particular phenomenon or reality under study and observing the resulting effects. The experimental method provides tangible and real results regarding the impact of the educational methods under investigation.

Research Population and Sample:

The research population comprised third-year students from the College of Physical Education and Sports Sciences, Al-Muthanna University, for the academic year 2023-2024, totaling 60 students divided into two classes. The research sample was randomly selected from this population, choosing one class through a draw. Class (C), comprising 37 students, was chosen to represent the research sample. After excluding students who failed, deferred, or participated in the pilot study, the final sample size

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became 27 students, distributed into three groups, each containing 9 students. The experimental groups were categorized as follows:

1. Group 1: Visual

2. Group 2: Mixed

3. Control Group

The sample percentage was 146% of the total population.

To ensure the sample's equivalence in skill performance and to start with a unified baseline among the three research groups, the researchers used the one-way analysis of variance (ANOVA) to identify differences in the level of skill performance among the three groups.

Table (1) shows the ANOVA results for the stages of technical performance of table tennis skills in the pre-test for sample equivalency among the research groups.

Stages	Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	Calculated F-Value	Difference Significance
Forehand Spin	Between groups	0.963	2	0.481	0.235	Random
	Inside groups	49.111	24	2.46		
Backhand Spin	Between	2.741	2	1.37	1.465	Random
	Inside	22.444	24	0.935		
Footwork	Between	1.556	2	0.778	0.42	Random
	Inside	44.444	24	1.852		

From Table (1), it is clear that the calculated F-values for the stages of technical performance of table tennis skills among the three groups (visual, mixed, and control) in the pre-test were 0.235, 1.465, 0.42, 0.896, 2.821, and 1.673, respectively, while the tabulated F-value was 3.43 at a significance level of 0.5 and degrees of freedom (2-24). Since the calculated values were smaller than the tabulated value, this indicates random differences among the three groups in the technical performance stages of the table tennis skills under study in the pre-test.

Tools and Equipment Used:

The following tools and devices were used to collect data:

Data Collection Methods and Equipment Used and Assisting Tools:

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- Arabic and foreign sources.

- Questionnaire form.

- Technical performance evaluation form.

- Personal interviews with specialized experts.

- Two DVD video players.

- Two Sony video cameras.

- Four video tapes.

- Four laser disks (CD).

- Table tennis table.

- Wooden boxes, 2 cm high, (6 pieces).

- Table tennis balls.

- Chalk.

- 5-meter measuring tape.

Pilot Study:

To ensure the accuracy of research procedures and to identify the strengths and weaknesses of the tests used, the researchers conducted a pilot study on a sample from the research population consisting of 4 students. This study took place on Sunday, March 23, 2024, at 9:00 AM in the sports hall of the College of Physical Education and Sports Sciences, Al-Muthanna University. The objectives of the pilot study were as follows:

- To identify obstacles and errors encountered during the research.

- To verify the suitability of the timing for different parts of the educational units.

- To determine the appropriateness of the tools used in conducting the study.

- To familiarize the assisting research team with the nature of the experiment and how to operate the equipment and tools used in the research.

- To understand how to organize and move groups in the outdoor playground and laboratories when using educational media.

- To understand how to conduct the tests.

Table Tennis Skill Tests:

Test Name: Test for Forehand Spin, Backhand Spin, and Footwork Skills.

Test Objective: To assess the degree of success in performing forehand and backhand spin skills and footwork.

Equipment: A standard table tennis table, regulation rackets, regulation balls, a ball collection basket, and a scoring form.

Test Description:

- The student stands in the backhand area, and the coach or the person throwing the balls stands diagonally opposite, with a collection of balls beside them. They throw (10) balls at an appropriate speed to specific spots on the table. The student hits the balls using the two aforementioned skills and moves their feet accordingly, with three attempts for each player, taking the arithmetic mean for evaluation. Each attempt involves (10) balls performed in the following sequence:

  - Backhand hit - One side step - Alternating forehand spin.

  - Backhand hit - Jump step - Alternating forehand spin.

  - Backhand hit - Half-circular step - Alternating forehand spin.

  - Backhand hit - Half-circular step - Alternating forehand spin - Cross-movement to the side - Alternating forehand spin.

Scoring:

The test is evaluated by three experts in table tennis using a form designed to record players' scores during the tests. The arithmetic mean of the experts' scores is taken.

- The evaluation score ranges between (0-20), divided as follows:

  - (1-10) points for the form of performance based on the experts' evaluation.

  - (1-10) points for successful shots in the opponent's area.

  - A separate person records the successful shots.

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The highest score a player can achieve is (20) points, divided between performance (10 points) and successful shots (10 points).

Scientific Basis for the Tests:

1. Test Validity:

The researchers relied on content validity to determine the validity of the tests by presenting the proposed tests to a group of experts and specialists in table tennis and in testing and measurement fields to evaluate their suitability for the research sample.

2. Test Reliability:

The researchers used the test-retest method by reapplying the tests (some table tennis skills) to the pilot sample of 4 students after seven days from the first experiment on Monday, December 26, 2023. The researchers then calculated the correlation between the results of the first and second experiments using Pearson's correlation coefficient. The results showed that all tests had a high degree of reliability.

3. Test Objectivity:

To determine the objectivity of the tests, the researchers used the scores of three evaluators to assess the skill performance of some table tennis skills based on their appearance. The Pearson correlation coefficient was used between the scores, showing a high degree of objectivity.

Research Procedures:

The researchers followed the following steps to conduct the study:

1. The researchers prepared a film showing some exercises that contribute to learning table tennis skills and distributed it to table tennis experts to modify and revise some exercise segments.

2. A second film was prepared by the researchers, demonstrating common errors in table tennis. This film was also shared with experts for revision before presenting it to the students.

3. After finalizing the films, the exercises were distributed to the experts to organize them appropriately for the educational units, assigning two exercises for each unit.

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4. The assisting research team was gathered, and tasks were assigned for conducting the tests and organizing the research.

5. The researchers determined the timing for conducting the experiment and the necessary duration for the educational units, which totaled (12) units at a rate of two units per week, with each unit lasting (35) minutes.

6. The time allocated for explanation and clarification for self-learning was (15) minutes, given during the educational segment, repeated multiple times, with the activity being observed—a feature of self-learning.

7. Self-learning was applied in the practical segment for a duration of (2) minutes.

8. Performance was evaluated by experts after completing the pre- and post-test procedures.

Pre-Tests:

Before starting the pre-test for the research sample, the researchers used two introductory units on two separate days to begin the learning process from a unified starting point among the three groups. The introductory units included an explanation of the table tennis skills used in the research and a clarification of table tennis rules. The pre-test took place on Tuesday, April 1, 2024, to test technical performance and video recording at 9:00 AM in the College of Physical Education - Al-Muthanna University.

Main Experiment:

The main experiment was initiated by the researchers after two introductory educational units in the second semester of the academic year (2023-2024). The objectives of these units were:

1. To introduce the research sample to the nature of table tennis skills and familiarize them with performing these skills practically to form an initial understanding since they are at an introductory performance level.

2. The main experiment lasted for (6) weeks from the start date of the educational units' implementation.

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3. An agreement was made with the subject teacher on how to conduct the experiment for the two groups using self-learning techniques with visual and mixed educational media via video.

- The first group received learning through visual media.

- The second group received learning through mixed media, with feedback given to both groups in short sentences during the final segment.

- The control group received traditional instruction from the teacher using the directive method.

After completing the last educational unit, the post-test was conducted.

Method of Conducting the Experiment:

The researchers followed the steps below during the experiment:

- After the pre-test of the three groups was completed, the experiment started on Sunday, April 6, 2024, with two educational units per week. All exercises followed in the educational films were used, but the difference lay in the use of various educational media in the educational units, represented by visual and mixed media via DVD videos.

- Each team leader from the assisting research team supervised a specific group, while the researchers provided overall supervision for both experimental groups.

- Group 1 was taught using the self-learning method with visual educational media via DVD video. The videos were shown multiple times in the educational segment, and the exercises in the videos were applied in the sports hall at the College of Physical Education - Al-Muthanna University with the help of the group leader and the assisting research team for both the educational and practical aspects.

- Group 2 was taught using the self-learning method with mixed educational media via DVD video. The videos were shown multiple times in the educational segment, and the exercises in the videos were applied in the sports hall with the assistance of the group leader and the assisting research team for both the educational and practical aspects.

- Exercises were performed in groups, with each group consisting of three learners performing the exercises simultaneously. The performance was left to the learners to

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decide in terms of repetition, rest, and exercise timing, as this is one of the characteristics of self-learning. In each educational unit, the learners performed two exercises.

- The researchers supervised both groups, along with the assisting team, and carefully observed the progress of the educational process to achieve proper learning in table tennis skills.

Pre- and Post-Tests and Video Recording:

The research sample was recorded using a Sony video camera during the pre- and post-tests for table tennis skills from a distance of (5) meters and a height of (120) cm. The camera was mounted on a tripod and aimed directly at the learner. The recordings took place at 9:00 AM.

Post-Tests:

After completing all the educational units, a post-test was conducted for all groups to determine which group showed the best learning outcomes. The conditions during the post-test were kept identical to those during the pre-test in terms of location and the timing of the test for the three groups.

Results and discussions

- **Presentation and Analysis of Arithmetic Means and Standard Deviations:**
- Presentation and Analysis of Arithmetic Means and Standard Deviations for the Performance of Table Tennis Skills among the Three Groups in the Pre-Test:

Table (2) shows the arithmetic means and standard deviations for the performance of table tennis skills for the three groups in the pre-test.

Variables	Unit	Group 1 (Visual)		Group 2 (Mixed)		Control Group	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Forehand Spin	Degree	4.889	1.453	5.00	1.500	4.556	1.333
Backhand Spin	Degree	5.667	0.866	5.222	0.833	5.889	1.167
Footwork	Degree	4.00	1.323	4.556	1.740	4.444	0.882

- Presentation and Analysis of Arithmetic Means and Standard Deviations for the Performance of Table Tennis Skills among the Three Groups in the Post-Test:

Table (3) shows the arithmetic means and standard deviations for the performance of table tennis skills for the three groups in the post-test.

Variables	Unit	Group 1 (Visual)		Group 2 (Mixed)		Control Group	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Forehand Spin	Degree	6.89	1.236	6.61	1.000	6.1	1.202
Backhand Spin	Degree	6.889	2.261	6.667	2.000	6.222	0.833
Footwork	Degree	6.111	2.315	6.556	1.740	6.889	0.601

- **Presentation of T-Test Results, Analysis, and Discussion:**
- Presentation, Analysis, and Discussion of the Differences in Arithmetic Means and Standard Deviations and the Calculated T-Value for the Pre- and Post-Test Results for the Performance of Table Tennis Skills for Group 1 (Visual) and the Development Percentage:

Table (4) shows the differences in arithmetic means and standard deviations and the calculated T-value between the pre- and post-test results for the performance of table tennis skills for Group 1 (Visual) and the development percentage.

Variables	Difference in Arithmetic Mean	Standard Deviation of the Difference	T-Value	Significance of Differences	Development Percentage (%)
Forehand Spin	3.556	0.882	12.095	Significant	72.735
Backhand Spin	12.222	2.774	13.219	Significant	159.410
Footwork	9.111	1.833	14.909	Significant	101.23

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From Table (4), it is evident that there is significant progress in table tennis skills for the visual group, as there were significant differences favoring the post-test. The greatest improvement in arithmetic means was in the backhand spin skill, which holds significant importance in table tennis. Footwork was ranked second, followed by the forehand spin skill in third place. The overall arithmetic mean difference between the three groups placed it in the second rank regarding learners' development. The researchers attribute this difference between the pre- and post-test and the observed improvement in the post-test to the use of educational media (educational films) and the use of (DVD video), which feature slow-motion displays of each technical skill and exercise, repeated multiple times during the educational unit. This observation aligns with the finding of Issam Mohammed Amin (1997), who stated that "the more a skill is repeated, the more automatic it becomes." The use of visual feedback also helped learners refine their motor program and select the correct movements, as confirmed by Thompson, who stated that "most learners have a visual and feedback-driven learning style, allowing them to learn by observing the skill during performance."

- Presentation, Analysis, and Discussion of the Differences in Arithmetic Means and Standard Deviations and the Calculated T-Value for the Pre- and Post-Test Results for the Performance of Table Tennis Skills for Group 2 (Mixed) and the Development Percentage:

Table (5) shows the differences in arithmetic means and standard deviations and the calculated T-value between the pre- and post-test results for the performance of table tennis skills for Group 2 (Mixed) and the development percentage.

Variables	Difference in Arithmetic Mean	Standard Deviation of the Difference	Calculated T-Value	Significance of Differences	Development Percentage (%)
Forehand Spin	4.333	1.323	9.827	Significant	86.660
Backhand Spin	13.444	2.068	19.501	Significant	186.153
Footwork	10.00	2.236	13.416	Significant	116.877

From Table (5), it is clear that there is significant progress in table tennis skills for the mixed group, as there were significant differences favoring the post-test. As observed in Group 1, the greatest improvement was in the backhand spin skill, followed by footwork in second place, and the forehand spin skill in third place. The overall score

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showed that this group achieved the highest level of progress among the three groups, meeting the second objective of the study to identify the best educational medium for self-learning. The researchers attribute this improvement to the use of mixed educational media, which provided learners with a better understanding and perception of table tennis skills. Moreover, the segmentation of technical phases and slow-motion display increased excitement, interest, and reinforcement since self-learning is a new method for learners, representing curiosity, a desire for education, and an escape from the repetition inherent in traditional directive teaching methods, which often rely on the instructor's guidance.

- Presentation, Analysis, and Discussion of the Differences in Arithmetic Means and Standard Deviations and the Calculated T-Value for the Pre- and Post-Test Results for the Performance of Table Tennis Skills for the Control Group and the Development Percentage:

Table (6) shows the differences in arithmetic means and standard deviations and the calculated T-value between the pre- and post-test results for the performance of table tennis skills for the control group and the development percentage.

Variables	Difference in Arithmetic Mean	Standard Deviation of the Difference	T-Value	Significance of Differences	Development Percentage (%)
Forehand Spin	0.667	0.866	2.309	Significant	14.640
Backhand Spin	0.333	1.00	1.000	Random	4.834
Footwork	0.444	0.882	1.512	Random	5.258

From Table (6), it can be noted that there are significant differences in favor of the post-test for the control group, with the best difference in the arithmetic means appearing in the forehand spin skill. However, there were random differences in the backhand spin skill and footwork skill. The researchers attribute the lack of significant development in this group to the use of the traditional directive teaching method, which may not provide a deep understanding of the skills, thus reducing reinforcement and the conceptualization necessary for learning. At times, the explanation did not reach the level of understanding needed by students due to their individual differences.

Other factors contributing to the limited development of this group include the lack of competition during lessons due to the repetitive use of the directive method, which

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compels the student to follow the instructor's directions without offering the learner an opportunity to control the performance. This is in contrast to the self-learning method, which allows the learner to teach themselves independently.

Gary Bokszar (1983) stated that "the self-learning method relies on the learner's understanding of the situations they encounter independently, not through the teacher. The learner is the one who analyzes the situations into their positive and negative aspects."

The directive method involves the learner following the teacher's guidance, implementing the tasks assigned without bearing any responsibility, which aligns with the opinions of many scholars.

This group showed some improvement but did not achieve the same level of progress as the two experimental groups. The most developed skill in this group was the forehand spin, with a development percentage of (14.640%). The footwork skill had a development percentage of (5.258%), while the backhand spin skill, considered a challenging skill to learn, had a development percentage of (4.834%). This indicates that the control group's final score was lower than that of the two experimental groups, with an overall development rate of (7.819%).

- Presentation of ANOVA Results for Table Tennis Skills among the Three Groups (Visual, Mixed, and Control) in the Post-Test:

Table (7) shows the analysis of variance (ANOVA) for the performance of table tennis skills among the three groups (visual, mixed, and control) in the post-test.

Variables	Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	Calculated F-Value	Difference Significance
Forehand Spin	Between groups	84.222	2	42.111	31.804	Significant
	Within groups	31.778	24	1.324		
Backhand Spin	Between groups	1025.407	2	512.704	156.861	Significant
	Within groups	78.444	24	3.269		
Footwork	Between groups	536.074	2	268.037	91.898	Significant
	Within groups	70.000	24	2.917		

The tabulated F-value is 3.403 at a significance level of (0.05).

- Presentation, Analysis, and Discussion of the Results of the Least Significant Difference (LSD) Test for the Three Groups in the Post-Test for the Forehand Spin Skill:

Table (8) shows the results of the LSD test for the three groups in the post-test for the forehand spin skill.

Groups	Arithmetic Means	Difference in Arithmetic Means	LSD Value	Difference Significance
(1) Visual – (2) Mixed	8.444 – 9.333	0.889	1.119	Random
(1) Visual – (3) Control	8.444 – 5.222	3.222*		Significant
(2) Mixed – (3) Control	9.333 – 5.222	4.111*		Significant

* Significant at the 0.05 significance level.

The researchers attribute this development to the use of educational media (the educational film) presented through video, which facilitated the understanding, comprehension, and perception of these skills. This aligns with the statement by Wajih Mahjoub: "The use of devices and tools facilitates the performance of movement" (1), helping provide a complete and clear description of the forehand spin skill and enhancing self-learning for the experimental groups by using both the senses of hearing and sight in the second group, leading to its slight superiority over the first group that only utilized the sense of sight.

Additionally, the visual feedback contributed to the development of the experimental groups by implementing the skills in the best possible way when performing the forehand spin skill. On the other hand, the control group showed significant differences compared to the two experimental groups due to the use of the directive method. Most decisions in this method are made by the teacher and not discussed, unlike self-learning, where decisions are made by the learner. Consequently, the progress was weaker compared to the other groups.

- Presentation, Analysis, and Discussion of the Results of the Least Significant Difference (LSD) Test for the Three Groups in the Post-Test for the Backhand Spin Skill:

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Table (9) shows the results of the LSD test for the three groups in the post-test for the backhand spin skill.

Groups	Arithmetic Means	Difference in Arithmetic Means	LSD Value	Difference Significance
(1) Visual – (2) Mixed	19.889 – 20.667	0.778	1.759	Random
(1) Visual – (3) Control	19.889 – 7.222	12.667*		Significant
(2) Mixed – (3) Control	20.667 – 7.222	13.444*		Significant

* Significant at the 0.05 significance level.

The researchers attribute this development to the characteristics of self-learning in the experimental groups, where the learner relies on themselves to evaluate their performance through movement awareness using sensory feedback. This is confirmed by Mohammed Al-Arabi (2001): "Sensory feedback helps form motor patterns automatically when the learner acquires the ability to sense movement."

The lack of progress in the control group is attributed to following the directive method, which relies on rote learning without involving the learner in the educational process, thereby preventing learners from solving problems through self-acquired experiences.

The first group showed development in these skills, although slightly less than the second group. Several teaching methods can achieve development, but they differ from one another. Visual imagery helped in understanding these skills through visual perception, i.e., external observation and movement sensation (internal feeling). It developed these skills through the observation of educational films via video. Mohammed Lotfi Hassan (2006) confirmed this by stating: "As the level of motor performance improves, so does the learner's motor imagery, which in turn improves due to the use of educational media."

This helped the experimental groups develop these skills, as these skills are among the most critical stages in table tennis.

- Presentation, Analysis, and Discussion of the Results of the Least Significant Difference (LSD) Test for the Three Groups in the Post-Test for Footwork Skill:

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Table (10) shows the results of the LSD test for the three groups in the post-test for the footwork skill.

Groups	Arithmetic Means	Difference in Arithmetic Means	LSD Value	Difference Significance
(1) Visual – (2) Mixed	18.111 – 18.556	0.444	1.662	Random
(1) Visual – (3) Control	18.111 – 8.889	9.222*		Significant
(2) Mixed – (3) Control	18.556 – 8.889	9.667*		Significant

* Significant at the 0.05 significance level.

The self-learning method, whether through visual or mixed media, allows the learner to evaluate their performance independently and helps identify and correct errors. This was confirmed by Mohammed Al-Arabi (2001): "The use of sensory feedback contributes to enhancing movement awareness, enabling the learner to perform skills with better precision."

Conclusions:

Based on the results of the study and the analysis and discussion of the data, the following conclusions were drawn:

1. The group that used self-learning with mixed educational media showed significant development in table tennis skills, outperforming the other groups.

2. The group that used self-learning with visual educational media also showed noticeable development but was less effective compared to the mixed group.

3. The control group, which used the directive method, showed minimal development in table tennis skills.

4. The directive method was found to be insufficient in understanding the finer details of performing table tennis skills, as evidenced by the results of the study.

5. The use of self-learning improved the quality of learning and increased its effectiveness, enhancing learners' understanding of the technical aspects of table tennis skills.

6. Self-learning provided sensory feedback that served as corrective and reinforcing information.

7. The self-learning method allowed learners to assess their own performance through sensory perception, leading to better learning outcomes.

Recommendations:

In light of the study's conclusions, the researchers recommend the following:

1. The use of self-learning methods in the educational process in general and for various skills through similar studies to identify the impact of educational media on the performance of table tennis skills.

2. The inclusion of educational media as part of the curriculum for performing table tennis skills to increase learners' understanding and perception of these skills.

3. The use of mixed educational media (visual and auditory) in teaching sports skills to achieve the highest levels of learning and skill development.

4. The incorporation of educational media into training sessions to provide feedback and help learners correct their errors independently.

5. Further studies should be conducted to compare the effectiveness of different educational methods on the performance of other sports skills, considering various factors such as age, skill level, and individual differences.

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