



THE EFFECT OF EDUCATIONAL METHODS BASED ON THE VISUAL REPRESENTATIONAL SYSTEM IN LEARNING THE SKILL OF JAVELIN THROWING FOR FIRST-YEAR STUDENTS IN THE COLLEGE OF BASIC EDUCATION

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Abstract

The research aims to prepare educational units according to the visual system in learning the skill of javelin throwing for first-year students in the College of Basic Education, and to identify the effect of the educational methods used according to the visual system in learning the skill of javelin throwing for members of the research sample.

To achieve the goal, the researcher used the experimental method and designed two equal experimental and control groups with a pre- and post-test to suit the problem and objectives of the research. The research population was limited to the students of the first stage of morning study in the Department of Physical Education and Sports Sciences - College of Basic Education - Al-Mustansiriya University, for the academic year 2023-2024, and their number is (115) students They were distributed into (6) divisions, namely (A - B - C - D - E - F). The research population was determined by the students of the first stage, as this stage teaches the skill of spear throwing. As for the research sample, they were chosen by lottery among the divisions to determine the groups (experimental and control). Then the researcher identified (25) students from each section by lottery as follows: Section B (25) students, Section E (25) students, and their total number reached (50) students, with a percentage of (43.47%), as they were divided into two groups. control and experimental, The experimental group, which is Division (B), will learn the skill of javelin throwing according to the teaching methods according to the visual representational system, and the control group, which is Division (E), will learn in the method used by the teacher (the imperative method) and according to the curriculum of the prescribed physical education lesson, The researcher conducted the pre- and post-test for the experimental and control groups, and conducted the appropriate statistical treatments. The researcher concluded that the use of educational methods in the educational curriculum was effective in improving the skill aspect of the experimental group, and that there was a relative improvement in the visual representational system among the learners and towards integration.

The researcher recommends the necessity of introducing male and female physical education teachers to the representational systems of neuro-linguistic programming for students, developing educational and training curricula in accordance with these systems, opening courses on how to use them, conducting a study of the impact of the use of educational means on the integration of other representational systems (auditory and sensory), and conducting studies similar to the study. Current on different samples and different sporting events.

Keywords: Visual representational system, javelin throw.



Definition of the Research and Its Importance:

Introduction to the Research and Its Importance: Our world is witnessing a series of scientific developments in all areas, as the emergence of modern technologies has allowed for an unlimited flow of information. Researchers have benefited from this information and utilized it to serve scientific research. Among these developments are modern educational trends that emphasize the importance of cognitive learning for learners, which occupies a wide space in the field of education. Most professionals in this vital area have taken a serious interest in knowledge, which has helped to create modern concepts, theories, and trends related to the educational process and its connection to individual differences among learners.

Impact of Teaching Methods: Teaching methods have taken on modern trends in the world due to their effect on the capabilities of the human mind. Organized efforts have begun to employ various educational means to design programs that meet the needs of the learner, as the learner is significantly influenced by the methods adopted by the teacher during the learning process.

Importance of Physical Education: Physical education is a significant field in education, as it prepares individuals physically, skillfully, and emotionally. Therefore, many countries around the world have directed their efforts toward developing their educational systems and continually reviewing their curricula and methods of application through teaching methods and techniques to achieve effective teaching.

Use of Educational Tools: The sport of athletics consists of skills requiring interaction between the teacher and the learner. Educational tools play a wide role in the process of learning and understanding them, as they encompass everything the teacher uses from available resources to convey and clarify information to the learner in order to achieve the objective. Generally, teachers utilize appropriate educational tools for their students to help deliver information to them, regardless of the differences that may arise in their reception of this information. Thus, various educational tools relying on visual representational systems can be used to minimize these differences and facilitate learning in the shortest time and with the least effort, particularly in the skill of javelin throwing.

The use of visual representational systems and educational tools in accordance with cognitive advancement creates a suitable learning environment characterized by interaction with educational programs to achieve specific goals. Additionally, these tools can be employed in learning the skill of javelin throwing as an educational medium within physical education curricula across different educational stages. This can be achieved by treating them as a means or educational tool that aids in learning and practicing.

The importance of different educational tools, whether used individually or collectively, lies in helping individuals—whether teachers or learners—to understand and overcome various educational stages, contributing to reducing effort and saving time. The significance of this research is highlighted through the use of various educational tools according to the visual system in learning the skill of javelin throwing for first-year students in the College of Basic Education.

. Problem of the Research:

The importance of using certain educational tools in the learning process has been established, and their use can assist the learner in forming clear perceptions of the material being learned. Since the researcher is one of the instructors in the Physical Education and Sports Science Department at the College of Basic Education, they found that there is a weakness and variation in understanding and learning the skill of javelin throwing among students in this stage. After reviewing various sources and references, the researcher discovered that the reason may stem from the differences in how individuals receive information based on their type of perceptual representational system. Relying on words, terms, images, and others can lead to varying degrees of information transmission. Therefore, it was found essential to use educational tools according to the visual representational system, which is more effective than other systems because it includes videos, images, or a



person demonstrating the skill in detail. Hence, the researcher used this representational system as it facilitates the learning of the javelin throwing skill for the students.

1.3 Objectives of the Research:

- To prepare educational units according to the visual system for learning the skill of javelin throwing for first-year students in the College of Basic Education.
- To identify the impact of the educational tools used according to the visual system on learning the skill of javelin throwing for the sample individuals in this research.

1.4 Hypotheses of the Research:

- There are statistically significant differences between the pre-test and post-test for the experimental and control groups in favor of the experimental group in learning the skill of javelin throwing for first-year students.
- There are statistically significant differences between the post-tests of the experimental and control research groups in learning the javelin throwing skill for the sample individuals in this research.

1.5 Fields of the Research:

1.5.1 **Human Field:** First-year students of the Physical Education and Sports Science Department, College of Basic Education. 1.5.2 **Temporal Field:** From (February 1, 2024) to (May 16, 2024). 1.5.3 **Spatial Field:** The athletics field associated with the College of Basic Education, Department of Physical Education and Sports Science.

3. Research Methodology and Field Procedures:

3.1 **Research Method:** The researcher employed an experimental method with pre-test and post-test designs due to its appropriateness for the research problem.

3.2 **Research Community and Sample:** The research community was determined to be first-year morning study students in the Physical Education and Sports Science Department at the College of Basic Education, Al-Mustansiriya University, for the academic year 2023 - 2024, comprising 115 students distributed across 6 divisions (A, B, C, D, E, F). The research community was identified among first-year students as this stage studies the skill of javelin throwing. The sample was chosen through a lottery from the divisions to determine the groups (experimental and control). The researcher then selected 25 students from each division by lottery as follows:

- Division B (25 students)
- Division E (25 students) Resulting in a total of 50 students, which is 43.47%. They were divided into control and experimental groups, with the experimental group (Division B) learning the skill of javelin throwing using educational tools according to the visual representational system. The control group (Division E) learned via the teacher's traditional method (the directive style) according to the prescribed physical education curriculum.

3.3 Means of Information Gathering and Tools Used in the Research:

(At this point, further details on information gathering methods and tools would typically follow.)

–3–1 Data collection methods:

- References and Arab and foreign sources.
- Personal interviews.
- Expert and specialist opinion poll form on awarding the grade.
- Data entry form.
- World Wide Web (Internet).
- Tests and measurements.
- Exploratory experiment.



3-3-2 Devices and tools used in the research:

- Digital electronic stopwatches, type (Casio), number (3).
- Computer (laptop), type (Lenovo).
- Athletics field.
- Iron balls, number (10).
- Japanese-made whistle.
- Mirrors, number (3), measuring (50 cm) wide and (150 cm) high.
- Pictures as means of illustrating the javelin throwing skill.
- Legal javelin, number (15).
- Indicators, number (20).

3-4 Field research procedures:

3-4-1 Test used in the research:

Javelin throw test (technical performance test) (Ibtisam Haidar Baktash, 2002, 51)

- Purpose of the test: Measuring technical performance.
- Tools used: Measuring tape, throwing range, spears, 210 fps video camera.
- Performance description: The tester runs in the throwing range for javelin throw to perform the approximate steps, holding the spear in his hand, and the tester performs the javelin throw skill with all its steps.
 - Test instructions:
 - The tester should not cross the throwing line.
 - Each tester has three attempts, the best is recorded.
 - Recording: The distance is measured in meters and their parts.
 - Preparing a form to evaluate technical performance.

3-4-2 Exploratory experiments:

3-4-2-1-1 The first exploratory experiment

The researcher conducted the first exploratory experiment for the test on a sample of the exploratory experiment sample for first-stage students, numbering (6) students, on (Sunday) corresponding to (4/2/2024) at exactly (ten o'clock in the morning), and on the athletics field in the College of Basic Education, Al-Mustansiriya University, in the Department of Physical Education and Sports Sciences, and the goal of the experiment was achieved, which is:

- The time period required to perform the test.
- The validity of the tools used in the research.
- Diagnosing errors and obstacles that will appear in the exploratory experiment and overcoming them.

3-4-2-1-2 The second exploratory experiment for the educational units prepared for the Ableton model The researcher conducted the second exploratory experiment for the educational units according to the visual representation system on a sample of first-stage students for the academic year (2023-2024) on Tuesday, corresponding to 6/2/2024 at (ten in the morning) to determine its suitability for students, in addition to organizing the time limit for the educational units, in light of which the time of activities in the other units will be calculated approximately and to determine the suitability of the time allocated to the preparatory, main and final lesson parts.

-4-3 Pre-tests:

The researcher conducted the pre-test of the weight-pushing activity on the research sample on Thursday, February 8, 2024, at the athletics stadium, after explaining the instructions and necessary steps on how to perform and apply, as well as preparing all the requirements and supplies for the tests.

3-4-3-1 Equivalence of the two research groups:



The researcher conducted equivalence for the two research groups (experimental and control) in the variables related to the research and before starting to implement the educational units on the main research sample. The researcher found that the individuals of the two groups (experimental and control) were equal, and this is a good indicator that these two groups are equal in the research variables. Thus, it became clear that these two groups are equal to conduct the study, which indicates that there are no significant differences between the two groups, which confirms the equivalence of the two groups in all pre-tests, as shown in Table (1).

Table (1)

shows the equivalence of the research groups in the pre-test

Significant	Sig	Value T	Experimental		Standard		Test
			E	S	E	S	
None	0.224	1.19	0.47	1.93	0.45	1.73	Spear technical performance

* Significant at a significance level of (0.05) and a degree of freedom of (48).

3-4-4 Main Experiment:

The main experiment was conducted starting from Sunday (11/2/2024) until (3/4/2024) in the (second) semester for a period of (8) weeks, with (2) educational units per week, so the total number of units will be (16) units, unit time (45) minutes.

The time of the educational unit was divided as follows:-

Preparatory section / 7 minutes

Main section / 35 minutes

Final section / 3 minutes

The researcher implemented the educational units on the research sample by the subject teacher and under the direct supervision of the researcher. The designed units were applied using auxiliary tools according to the visual representation system on the experimental group.

Number of educational units: (16) educational units for each system

Duration of the educational unit: 45 minutes

Number of weekly units: Two educational units for each educational group

3-4-5 Educational curriculum

3-4-5-1 Educational curriculum for the experimental group

The researcher prepared the educational curriculum vocabulary for the javelin throwing skill, relying on her experience in her field of work as a teacher of the subject, in addition to following up on scientific and educational sources, consulting the opinions of experts in the field of athletics, motor learning, and teaching methods, and relying on the curriculum vocabulary.

□ The lesson (educational unit) (40 minutes) was divided into sections

1- The preparatory section: (8) minutes, divided into a general warm-up for 4 minutes and a special warm-up for 4 minutes.

2- The main section: - Its duration is 28 minutes, and it is divided into

□ The educational aspect: - 8 minutes: - (2 minutes) Explaining the skill, presenting the skill (4 minutes) and performing (2 minutes).



The practical side: - Its duration is (20) minutes. Various exercises were applied to serve the skill and according to what was previously mentioned, and audio and sensory means were used with the performance of the exercises prepared in the plan, and (3) mirrors were placed with a width of (50) cm and a height of (1.50) meters on one side of the throwing track, in which the lesson was applied so that the student could see his performance, and illustrative pictures of the javelin throwing skill. The implementation of the educational units prepared according to the visual representation system began on the students of the experimental group starting from Sunday corresponding to (11/2/2024) until (3/4/2024) in the (second) semester for a period of (8) weeks, but if there was an official holiday on this day, it was compensated for on another day, and the educational units were given to the experimental and control groups by the same teacher in order to stay away from all influences and obtain accurate results.

3-4- 6 Post-tests:

After completing the application of the educational units for the experimental group and the control group, the researcher conducted the post-test on Sunday (4/7/2024) for the experimental and control groups to measure the extent of students' learning of the effectiveness of javelin throwing, using the same test that was used in the pre-test and under the same conditions and under the supervision of the researcher and the assistant work team.

3-6 Statistical methods

The researchers used the following statistical systems:

- The (Microsoft Excel) system to download the data, separate it and extract the standard scores in a sequential manner.
- The ready statistical package (IBM.SPSS.Ver20) to obtain the following:
- The arithmetic mean.
- The standard deviation.
- The skewness coefficient.
- The (T) test for equal, non-symmetrical samples.
- The (T) test for equal, symmetrical samples.

4- Presentation, analysis and discussion of the results:

4-1 Presentation, analysis and discussion of the results of the research tests for the experimental and control groups for the effectiveness of the long jump:

Table (2)

shows the arithmetic means and standard deviations (t) value for the pre- and post-test for the experimental group

Significant	Sig	Value T	Post		Pre-		Test
			E	S	E	S	
Significant	0.000	27.15	0.51	6.86	0.47	1.93	Spear technical performance

* Significant at a significance level of (0.05) and a degree of freedom of (24).



Table (2) shows that there are significant differences between the results of the pre- and post-test in favor of the post-test for the experimental group in the research tests. The researcher attributes this improvement to the effectiveness of the educational units and various exercises used by the researcher and the role of educational tools, including mirrors as a visual means that reflect the image of the learner's performance. On the other hand, increasing the possibility of learning and mastering some skills requires the teacher to use and introduce means that help him in his work in a way that saves time and effort spent by the learner and the teacher, in addition to the fact that it is based on involving some senses in the learning process, which leads to its consolidation and deepening, "and this is what agrees with Saif Alaa" that motor learning using mirrors plays a decisive role in developing motor performance more than other methods" (Saif Alaa, 2014, 97). All of this worked to directly involve the sense of sight, which makes the information reaching the learner experiences that can be felt and perceived directly. As indicated by (Medin Ross, 2006, 127) "The visual system transmits information to the motor system in order to correct and determine the real movement, as the visual system is very sensitive to movement and is a rich source of information." Thus, the brain can, through visual perception, distinguish all the inputs we see and give them meaning through previous experience, in addition to its role in adding a factor of excitement and enjoyment when learning. Here, it can be said that planned programs can make learning continuous until performance is consolidated and stable. (In addition to the fact that the exercises used in the educational curriculum have been prepared in a scientific manner based on sources with the continuation of (presenting the model) and illustrative images of the skill, as the learner's vision of the movement to be learned is one of the factors through which the learner can perceive the initial perception of the movement) and (Qasim Lazam, 2013, 74) states that presenting the model is one of the most important means used, provided that it is correct, as the student is always eager to see all the new movements that the teacher presents for the purpose of learning them, and examples of this type of means are (pictures) of all kinds, drawings, and educational films. Through (visual means), it is possible to acquire the visual perception of the new motor skill, and in a correct manner, as it compares what should be done with what was actually done.

Table (3)

shows the arithmetic means and standard deviations of the (t) value for the pre- and post-test of the control group

Significant	Sig	Value T	Post		Pre		Test
			E	S	E	S	
Significant	0.042	14.49	0.79	5.73	0.45	1.73	Spear technical performance
* Significant at a significance level of (0.05) and a degree of freedom of (24).							

Table (3) shows that there are significant differences between the results of the pre- and post-test in favor of the post-test for the control group in the research tests. The researcher attributes these differences to the effect of educational exercises according to the learning method used, provided that these educational exercises used are based in their objectives and paragraphs on the correct scientific foundations in their content and implementation to reach the theoretical and skill learning to the desired goals, as "when the curricula are implemented effectively, the general performance of students improves greatly and then students can gain an additional benefit, which is the development of new learning about how to learn skills" (Mohamed Mahmoud Al-Hila, 1999, 64), as well as the educational exercises, their main goal is to improve the level of performance



through practice, training and repetition of the learning process, “The quality of the teaching method and its procedures have a clear effect on developing skill performance. The longer the period allocated to skill performance and the greater the number of exercises allocated to developing the specific skill, the higher the percentage of learning” (Muhammad Mahmoud Al-Hila, 1999, 64).

Table (4)

shows the arithmetic means and standard deviations of the (t) value for the post-tests of the experimental and control samples.

Significant	Sig	Value T	Standard		Experimental		Test
			E	S	E	S	
Significant	0.002	4.61	0.79	5.73	0.51	6.86	Technical Performance of the Spear

* Significant at a significance level of (0.05) and a degree of freedom of (48)

From Table (4), it was shown that there were significant differences between the results of the post-test for the experimental and control groups in favor of the experimental group in the research tests. The researcher attributes the reason for the superiority of the experimental group students over the control group students at this level to the fact that the prepared educational units were more positive than the educational units for the control group, as they allowed the teacher to explain the material in more detail and accuracy and link it to the students' previous information and experiences, in addition to practicing exercises practically and in a diverse and renewed manner, which led to learning the skill performance, as well as the inclusion of these prepared educational units on the optimal use of feedback and correcting errors continuously and immediately through observation by looking in the mirror, as both (Mahmoud Al-Rubaie and Saeed Amin, 2010: 303) see that “it is one of the means used to ensure the achievement of the best possible goals and objectives, which the educational process seeks to achieve on an ongoing basis to help the learner stabilize performance if it is going in the right direction or modify it if it needs to be modified, and this has a positive impact in refining And refining and polishing the performance.

The researcher also sees that there is a positive point that led to the superiority of the experimental group over the control group, which is the positive environment created by the teacher through the application of educational means in these prepared units, as these units included the use of new educational means that were not familiar to them before, as well as the diversification of educational exercises for skills, which made these units more exciting, interesting and enjoyable for the students, which led to their interaction and drive to apply their contents with all keenness, desire and drive, and this is what was confirmed by (Qasim Lazam and others, 2005: 60) “The diversity and renewal in the use of exercises, methods and approaches when teaching sports skills is the most appropriate in creating an atmosphere characterized by suspense, excitement and enjoyment for the student, which contributes to learning and acquiring sports movements and activities quickly.” The group adopted auxiliary means: (illustrations, mirror and educational booklet) that helped them form correct images of skill performance, and thus helped provide the opportunity for students to modify their previous concepts and acquire new concepts, as these means were designed and chosen on scientific bases that suit the students' abilities, tendencies and desires, in addition to attracting their attention, using (data show, mirror and



educational booklet) and linking their previous information with new information, learning is the result of the interaction between what they learned and their current ideas, and this is what was indicated in that "students come to the classroom with a lot of prior knowledge and misconceptions, and the most important influential factor is what students already know. (Al-Khazraji, 2020: 43) Also, the use of auxiliary means in the applied part of the main section in educational units had a positive impact on the learning process, as it works to increase learners' attention and break the monotony of educational situations. What is known to educational psychologists is that education goes through three stages, the first is attention, the second is perception, and the third is understanding. The more attention increases, the more awareness increases, and thus the learners' understanding increases. The auxiliary means helps the teacher to make his educational situation more exciting and more interesting, which leads to increasing the learner's attention, interrupting the intensity of the educational situation, and preventing the learner's mind from wandering. When the teacher uses the auxiliary means and relies only on verbal symbols in his explanation, some learners find it difficult to keep up with the teacher during the explanation, and thus the differences between learners will increase because some of them can follow and understand, while others cannot. By using auxiliary means, they help us reduce those individual differences between learners, and the rate of understanding of each learner will increase to a reasonable degree and to a better degree if we compare that without using auxiliary means (Farida Othman and Attia Othman, 1088: 92). This was confirmed by (Ban Adnan, 2007: 141) that "organizing skill exercises, diversifying them, and increasing the number of attempts with the use of auxiliary training tools contributes to creating a new atmosphere that arouses in the learner a kind of pleasure and drive to perform these exercises and repeat them without arousing feelings of boredom or weariness in him."

5- Conclusions and recommendations:

5-1 Conclusions:

From the results presented, their analysis and discussion, the researcher reached the following conclusions:

- The use of educational means in the educational curriculum was effective in improving the skill aspect of the experimental group.
- There is a relative improvement in the visual representational system among learners and towards integration.

5-2 Recommendations:

- The necessity of familiarizing physical education teachers with the representational systems of neurolinguistic programming for students, and developing educational and training curricula according to these systems and opening courses on how to use them.
- Conducting a study on the effect of using educational means in the integration of other representational systems (auditory and sensory).
- Conducting studies similar to the current study on different samples and different sports activities.

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Appendices

Appendix (1)

Technical performance evaluation form for javelin throw

Total Grade	Final Section (2)	Main Section (5)	Preparatory Section (3)	Student Name

Note:

1. The total score is (10) points.

2. The technical performance sections of the javelin throw event include the following:

Preparatory section: includes (holding the javelin, carrying the javelin, ready stance, approach)

Main section: includes (throwing steps, throwing and disposal stage)

Final section: includes (stopping (balance))