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THE IMPACT OF USING INSTRUCTIONAL UNITS ACCORDING TO THE PRESSLEY MODEL ON THE TEACHING JAVELIN HURLING TO STUDENTS

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A B S T R A C T

The current research aims to investigate the impact of using instructional units based on the Pressley model in teaching of javelin Hurling to students. The researcher employed an experimental approach to fulfill the research requirements. The research procedures involved selecting a sample of third-year students majoring in Physical Education and Sports Sciences at the College of Basic Education, Mustansiriya University. The sample consisted of fifty-two students, equally divided into experimental and control groups.

Pre-tests were conducted, and the instructional units were implemented using the Pressley model. After completing the educational program, which lasted for eight instructional units, the researcher administered a post-test to measure the javelin Hurling skills. The results indicated a positive impact on the learning of javelin Hurling skills among the experimental group students.

The results were interpreted, and recommendations were provided by the researcher, emphasizing the importance of adopting instructional units prepared according to the Pressley model in teaching various other skills and activities.

K E Y W O R D S

Hurling, javelin, skill, Pressley, Model.

Introduction

1. Research definition:

1.1 Research Introduction and Importance:

Educational systems in various countries around the world are undergoing several reforms and modifications to the methods and techniques used in educational and teaching processes. Therefore, teaching experts and specialists recommend updating the educational process on sound scientific foundations. It is necessary to adopt educational models for modern learning based on the renewal of the educational system, ensuring the delivery of information to learners, and benefiting from theoretical material in the practical aspect, and using new methods that are in line with scientific developments and advancements in all fields, especially in the educational field[1]. This is achieved through emphasizing and focusing on creating a creative learning environment that makes the student a positive recipient, seeking information and renewing it. The student should interact with the

[1] Al-hila, Ahmed Mahmoud, 2003, University Book House, 3rd Edition, United Arab Emirates, Al Ain, Page 245.

educational process and shape information through the teacher's guidance to help them acquire new experiences[2].

And this renewal in the teaching process has encompassed the field of sports sciences and its education. Physical education is one of the core subjects accompanying all stages of education, and it is no less important than any other subject. Therefore, the researcher found it necessary to teach the theoretical aspect, not just the practical, so that the learner can recognize the importance of the subject or sports activity. This helps them gain a precise understanding of the activity and its fundamentals by moving away from traditional methods to new teaching models, which involve the implementation of educational units using the Pressley model to assess their impact on the learning process for the javelin Hurling activity among students.

1.2 Research Problem:

Through the researcher's experience in the field of learning and teaching methods, both general and specific, and teaching the subject of " athletics " (which can be translated to "Field and Arena"), there is a recognized need to utilize instructional units based on modern teaching and learning models. These models are commonly used in teaching sports activities and skills in general, and specifically in track and field events.

Most teaching methods traditionally rely solely on teacher-led instruction and student listening, with a weak connection between theoretical study and practical aspects in the field of physical education. This lack of integration between theoretical, practical, and applied aspects has resulted in a deficiency in bridging the gap between theory and practical application in practical lessons within physical education.

Hence, the researcher has identified the necessity of introducing the theoretical component to facilitate the comprehension and learning process and to build knowledge among students. This approach aims to enable students to apply their theoretical knowledge effectively in the practical aspect of javelin Hurling, enhancing their overall learning experience.

1.3 Research Objectives:

1. Prepare instructional units using the Pressley model for teaching javelin Hurling to students.
2. Determine the impact of instructional units using the Pressley model on teaching javelin Hurling to students.

1.4 Research Hypotheses:

1. There are statistically significant differences between the results of pre-tests and post-tests for both the experimental and control groups, in favor of the post-test results.
2. There are statistically significant differences in the post-test results between the experimental group and the control group.

1.5 Research Journals:

1.5.1 Human Domain: A sample of students from the Department of Physical Education and Sports Sciences, College of Basic Education / Third Stage.

[2] Al-Jabri, Ali Khawam, and Ali Hikmat Al-Nuaimi, 2021 CE, Constructivist Theory: Strategies and Applications in Teaching Physical Education and Sports Sciences, Dar Al-Wafaq, Amman, Jordan, Page 22.

1.5.2 Temporal Domain: The period from 19/2/2023 to 20/3/2023.
1.5.3 Spatial Domain: The outdoor area of the Department of Physical Education and Sports Sciences, College of Basic Education, Mustansiriya University.
1.6 Terminology Definitions:

Pressley Model:
The Pressley model is one of the models that numerous research studies have shown to be effective in learning new experiences. This has also been evident in the use of various classifications for perceiving mnemonic aids[3].
Defined by Jaber (1998): It is one of the information processing models that emphasizes methods for enhancing a person's natural motivation to make sense of the world they live in. This involves collecting and organizing data, sensing problems, and finding solutions to them, developing concepts, acquiring language to express and convey them[4].
Defined by Qatami (1993): It is one of the mnemonic aids that contribute to facilitating processes of memorization, recall, and comprehension. It is also a good method that students use with added information and experiences[5].

2. Research Methodology and Field Procedures:

2.1 Research Methodology:

The researcher chose the experimental methodology to suit the research conditions and the needs of the experiment. Experimental methodology is an attempt to control all the fundamental factors influencing the independent variable or variables in the experiment, except for one specific factor that the researcher manipulates to determine and measure its impact on the dependent variable or variables[6].

2.2 Research Sample:

The researcher selected students from the College of Basic Education, Department of Physical Education and Sports Sciences. The students chosen were from the third year. The researcher obtained lists of the names of third-year students (the research sample) from the department's administration.
The researcher randomly selected one of the classes, which was the third-year class (Hall 1), to represent the control group. This class initially had thirty-one students, but after excluding five students, it had twenty-six students.
Another class, the third-year class (Hall 2), was selected to represent the experimental group. This class initially had thirty-two students, but after excluding seven students, it had twenty-six students.
Therefore, the total number of students in the research sample was fifty-two students. The reasons for exclusion were either academic failure or irregular attendance, resulting in a total of twelve excluded students, as shown in Table (1).

[3] Pressly, M and Other (1982) " The mnemonic Key world method ", review education research.
[4] Jaber, Abdelhamid Jaber: (1998), Teaching and Learning, Theoretical Foundations - Strategies and Effectiveness, Vol. (1), Dar Al-Fikr Al-Arabi, Cairo, p. 234.
[5] Qatami, Wanaifa Qatami: (1988), Models in Classroom Teaching, Dar Al-Shorouq for Publishing and Distribution, Amman, p. 267.
[6] Al-Shawk, Nouri Ibrahim, and Rafi Saleh Al-Kubaisi (2004). The Researcher's Guide to Writing Research in Physical Education, Baghdad, p. 135.

Group	Hall	Number of Students Before Exclusion	Excluded Students	Number of Students After Exclusion
Control	1	31	5	26
Experimental	2	32	7	26
Total	1+2	63	12	52

2-3 Research Sample Homogeneity

To avoid factors that could influence the experiment's results, the homogeneity of the research sample was assessed based on height, body mass, and age using the coefficient of variation (CV). The results indicated homogeneity within the sample, as the coefficient of variation fell within the range of (+1, -1). This is a good indicator, as values closer to zero suggest a balanced distribution[7]. The details are presented in the table below (Table 2).

Table (2) Represents the Homogeneity of the Research Sample in Height, Body Mass, and Age

Variable	Unit of Measurement	Mean	Median	Standard Deviation	Coefficient of Variation
Height	**Centimeters**	**173.431**	**174**	**2.157**	**0.613**
Body Mass	**Kilograms**	**73.256**	**72**	**2.448**	**-0.469**
Age	**Months**	**227.14**	**226**	**2.389**	**-0.392**

2-4 Research Sample Equivalence

The researcher conducted statistical equivalence tests for the students in the research groups regarding the variable of skill performance in javelin Hurling. The researcher used the results of these tests for pre-tests, as shown in Table (3).

Table (3) Shows the Differences Between the Control and Experimental Groups in the Pre-test for Javelin Hurling Skill Performance.

Group	Sample Size	Mean	Standard Deviation	Degrees of Freedom	Calculated t-Value	Tabulated t-Value	Significance Level
Control	26	33.327	11.741	50	0.036	2.021	Random
Experimental	26	33.212	11.172				

2-5 Data Collection Tools and Equipment:

1. Arabic and foreign sources.
2. Skill assessment test forms for javelin Hurling.
3. Electronic scale for weight measurement.
4. Cloth tape measure for height measurement.
5. Adhesive tape.
6. 30 javelins.

[7]Alam, Salah al-Din Mahmoud, Parametric Inferential Statistical Methods, 2006, 1st ed., Cairo, Arab Thought Publishing House, p. 246.

7. Laptop computer (Acer P4).
8. Wall-mounted whiteboard.
9. Camera for recording (Sony).

2-6 Field Research Procedures

2-6-1 Skill Identification

The researcher chose the skill of javelin Hurling, which is part of the curriculum for the third grade in the Department of Physical Education and Sports Sciences at the College of Basic Education at the University of Mustansiriyah. This choice aligns with the curriculum provided by the department.

2-6-2 Pre-Test for Javelin Hurling Skill

The researcher conducted a pre-test for javelin Hurling skill. After experts reviewed the performance evaluation form for the test, the researcher made the necessary modifications. The final test format was selected, and it was administered to both the control and experimental groups. The results showed no statistically significant differences between the two research groups in the pre-test for javelin Hurling skill. This indicates that the control and experimental groups were equivalent in the pre-test for javelin Hurling skill.

Purpose of the Test

The purpose of the test is to measure the level of skill performance in javelin Hurling for everyone in the sample.

Procedure for Performing the Javelin Hurling Skill Test

1. The student holds the javelin according to the correct grip conditions.
2. The student performs the complete kinetic sequence for javelin Hurling.
3. The student throws the javelin under the condition that it falls within the Hurling sector, which consists of two intersecting lines forming a 40-degree angle at the center of the Hurling circle.
4. After completing the javelin throw, the student exits from the front side of the circle (opposite to the Hurling sector).
5. Each student is given three attempts.

Scoring

The score is calculated based on the technical phases of skill performance for javelin Hurling, with each phase worth ten points. The final score is out of a total of seventy points. The phases include:

1. Javelin grip
2. Javelin carrying
3. Starting stance
4. Approach run
5. Steps
6. Hurling
7. Balance after the throw

The scores for each part of the skill are calculated based on three attempts, and the final score is obtained by summing these scores and calculating the average.

2-7 Survey Experiment for Skill Tests

The survey experiment was conducted on Sunday, February 19, 2023, on a sample of the research community consisting of eight students who did not participate in the main experiment. These students are from the College of Basic Education at the University of Mustansiriyah, Department of Physical Education and Sports Sciences.

Survey Experiment Findings:

1. The safety and suitability of the equipment and tools were confirmed.
2. The assistant team was competent and sufficient.
3. The timing of the tests was appropriate.
4. The instructions and guidance provided were clear.

2-7-1 Scientific Foundations of the Tests:

A- Reliability (Stability):

A test is considered dependable when it produces consistent results upon repetition[8], especially when the testing conditions and circumstances remain similar between the two tests. To calculate the reliability coefficient, the researcher employed the test-retest method. The tests were administered to the survey experiment sample on Sunday, February 19, 2023, and then the same tests were repeated three days later February 22, 2023[9]. The results confirmed the Pearson correlation law, indicating that the tests exhibit a high degree of reliability, as demonstrated in Table (4).

B- Validity (Accuracy):

To establish the validity of the tests, the researcher sought the input of experts and specialists. These experts reviewed the candidate tests to assess their content validity. They unanimously agreed that these tests effectively measure the intended attribute or ability. Therefore, the tests are considered valid. According to the following equation:

The coefficient of self-validity $=\sqrt{the\ coef f icient\ of\ \ stability}$.

Table (4) shows the coefficient of stability and the coefficient of self-validity for the two skill tests.

Skill Test	Measurement Unit	Coefficient of Stability	Coefficient of Self-Validity
Javelin Hurling Skill Test	Degree	0.85	0.92

C - Objectivity:

Objectivity is defined as the absence of differences between evaluators in judging a particular thing or a specific subject[10]. Based on this principle, objectivity was established for the tests in the research field through the evaluation of experts. The assessments showed an elevated level of objectivity

[8] Al-Yasri, Mohammed Jassim, 2010, The Theoretical Foundations of Physical Education Tests, First Edition, Dar Al-Diyaa for Printing, Najaf, Iraq, p. 247.
[9] Farhat, Laili Al-Sayyid, 2007, Measurement and Testing in Physical Education, Fourth Edition, New Cairo, Cairo, p. 184.
[10] Ridwan, Muhammad Nasr al-Din, 2006, Introduction to Measurement and Testing in Physical Education and Sports, First Edition, p. 198.

between the scores of the first evaluator and those of the second evaluator, indicating that all the tests under study achieved high objectivity.

2-8 Pre-Skill Test:

The pre-skill test for the javelin Hurling was conducted on Thursday, February 23, 2023. The sample was divided into two groups, the control group and the experimental group, and evaluations were made using assessment forms prepared by the researcher according to expert advice. The experts provided the final scores for the skill performance of everyone in the sample for each test.

2-8 Educational Curriculum (Teaching Units):

The implementation of the teaching units began on Sunday, February 26, 2023, and continued for four weeks until March 26, 2023. The curriculum included eight teaching units, with two teaching units per week, each lasting 90 minutes, in accordance with the physical education class schedule. The researcher conducted a workshop with the teaching team one week before the experiment to explain how to teach using the Pressley model. The teaching team, under the researcher's supervision, provided introductory units to the students according to the model for the javelin Hurling.

2-8-1 Proposed Curriculum Timeline:

- Distribution of the curriculum vocabulary over 4 weeks.
- Two teaching units per week, with a total of two teaching units.
- Each teaching unit lasts for 90 minutes.
- The total time for teaching units is 720 minutes.
- The program was reviewed and modified by experts in teaching methods to reach its final format.

2-9 Main Experiment:

The main experiment took place from February 26, 2023, to March 26, 2023. The control group received lessons in the conventional manner by the subject's teacher in the college. The experimental group, on the other hand, followed the teaching units prepared by the researcher according to the Pressley model for the effective teaching of javelin Hurling.

2-10 Posterior Motor Skill Tests:

Posterior motor skill tests were conducted on Thursday, December 8, 2011, at the College of Physical Education, University of Qadisiyah. The experts assessed the participants using evaluation forms, and the researcher relied on the arithmetic mean of the experts' scores in the statistical analysis, which shows the scores used in the results of the experts for the control and experimental groups in the pre- and post-motor skill tests.

2-11 Statistical Methods Used:

The researcher used the SPSS program.

3 - Presentation and Discussion of the Results

4-1 Presentation and analysis of the quantitative test results for the experimental and control groups in the javelin throw skill test:

The researcher aimed to verify the hypotheses by calculating the means and standard deviations, then determining the significance of differences between the pre-test and post-test and between the post-tests for the control and experimental groups in the motor skill tests, from which the researcher inferred the level of motor learning for the two research groups.

Table (5) displays the arithmetic means, standard deviations, and the calculated (T) value for the control and experimental groups in the pre-test and post-test results.

Skill test	Group	Unit	Mean		difference	Cal. T value	Sig
			Pre	Post			
Javelin Hurling	control	degree	33.327	45.385	12.085	5.287	Sig
	Experimental	degree	33.212	51.962	18.750	8.079	Sig

The critical t-value (2.060) at a significance level of 0.05 with 25 degrees of freedom (25-1=25) is statistically significant at a 0.05 level of significance.

In the discussion of the pre-test and post-test results for the javelin throw between the experimental and control groups, when referring to Table (5), we observe statistically significant differences in the results between the pre-test and post-test scores in the motor skill tests that were conducted using the adopted method. There are also differences noted in the arithmetic means of the post-test results.

Furthermore, it is evident that the experimental groups achieved tangible improvements in the post-test results compared to the pre-test results. The differences between the pre-test and post-test scores are statistically significant for the tests, and there are differences in the arithmetic means of the post-test results. This confirms the first research hypothesis that there are statistically significant differences between the pre-test and post-test results for the experimental and control groups in motor learning for the javelin throw in the research sample.

The researcher attributes this progress and development in the arithmetic means of the experimental group to the use of educational units based on the Pressley model. The experimental group utilized this model to teach the javelin throw. The researcher also attributes these results to the design of the educational units based on the Pressley model and their implementation by the teacher in the lesson, which is characterized by organized planning and a series of steps and procedures in their execution.

This aligns with the views of Al-Jabri and Hikmat, as learners renew their ideas and concepts according to thinking methods and approaches that allow them the freedom to think and act positively. They become active recipients who generate ideas, build knowledge, and can correctly connect relationships and concepts through steps that contain organized and sequential details, are open to development, and consider the individual differences among learners and consider all available resources. All these factors contribute to achieving the desired lesson objectives and improving the teaching process[11].

[11] "Previously mentioned reference," Page 133.

Kassem Lazam believes that acquiring knowledge, which includes new vocabulary and making multiple decisions to achieve a goal, involves connecting previous skills with new skills to form a foundation for learning other skills.[12]

This aligns with Pressly's view that the Pressley model is one of the information processing models that emphasizes methods to enhance a person's intrinsic motivation to make sense of the world they live in. It involves collecting and organizing information and data, sensing problems, seeking solutions, developing concepts, and creating a language to express and convey them. Additionally, the model provides learners with information on how to retain it for as long as possible.[13]

3-2 Presentation and analysis of the post-test results for the javelin throw skill for both the experimental and control groups.

Table (6) displays the arithmetic means, standard deviations, calculated t-values, and the significance of the differences between the control and experimental groups in the post-test for the motor skill test.

Skill test	Unit	Control		Experimental		Cal.T value	Error	Sig
		M	SD	M	SD			
Javelin hurling	Degree	45.385	10.471	51.962	11.505	2.156	0.036	Sig

The tabulated t-value (2.021) at a significance level of 0.05 and with 50 degrees of freedom is considered significant at a 0.05 level of error.

3-2-1 Discussion of the Post-Test Results for Javelin Throw Skill for Both the Experimental and Control Groups

As presented in Table (6) for the motor skill test results for javelin throw effectiveness, the results indicate significant differences between the post-tests for the variables under investigation in favor of the experimental group. This confirms the research hypothesis that there are statistically significant differences between the post-test results for motor learning in javelin throw in favor of the experimental group.

These results can be attributed to the use of educational units based on the Pressley model, which contributed to instructing students and empowering them to build theoretical knowledge related to the practical, applied aspects of the activity. This led to enhancing theoretical knowledge associated with practical, applied goals for the students during educational situations for the activity and executing this knowledge. The use of educational units based on the cognitive constructivist approach, including the Pressley model, allows students to increase the educational process and become active participants in the lesson rather than passive listeners. This is achieved through following the steps of the model and breaking down the components of the activity into smaller parts to help the student construct a new understanding of the knowledge they are learning.

[12] Sabr, Kassem Lazam, "Topics in Motor Learning," Second Revised Edition, Baghdad: Al-Burq Printing, 2012, p. 185.
[13] "Previously mentioned reference," Page 83.

This aligns with Al-Naimi's view, as he believes that sports knowledge is built through steps that assist in critical thinking and connecting concepts to practical application[14]

This aligns with Schell's view that selecting a program, whether educational or training, requires careful consideration of its components, topics, and the coordination and connection of educational situations. If the components and topics of the proposed program are not linked to each other and to the actual practice situations during competitions and races, this program will not enable the athlete to excel and reach the desired level of achievement.[15]

This also aligns with Al-Rubai and Hamdamain's (2010) view that breaking down a skill into smaller units and analyzing the skill, as well as identifying the concepts, laws, and information needed by the learner through the development of educational teaching strategies used by the teacher in teaching the skill or sports activity, contributes to the student reaching the mastery stage in learning and the success of the educational process. The researcher applied this approach in the educational units prepared according to the Pressley model and applied it in teaching javelin throw to the students, thus achieving the second hypothesis of the research assumptions.

4-1 Conclusions

Considering the research results, the following conclusions can be drawn:

1. There is a positive impact of the educational units used according to the Pressley model on learning the javelin throw skill.
2. The number of educational units prepared by the researcher was suitable for the research sample and appropriate for teaching javelin throw.
3. The educational units prepared according to the Pressley model achieved an advantage in teaching students the performance skill of javelin throw.
4. The Pressley model is suitable for teaching sports skills and activities, especially track and field events.

4-2 Recommendations

Based on the results and conclusions reached by the researcher, the following recommendations are made:

1. Use educational units according to the Pressley model in teaching track and field events.
2. It is essential for track and field teachers to pay attention to the effective use of the Pressley model in developing the teaching process in both practical and theoretical aspects.
3. Consider adopting the Pressley model as a modern model for teaching theoretical and practical aspects of physical education skills and activities.
4. Curriculum developers in the Ministry of Education should focus on adopting modern teaching models, including the Pressley model, in physical education curricula.
5. Study the Pressley model in learning or modifying students' attitudes toward physical education classes.
6. Conduct similar studies to this one in other educational levels and for both male and female students.

[14] Al-Naimi, Ali Hikmat, "Cognitive Strategies in Physical Education," Al-Wafaq Publishing House, Amman, Jordan, 2021, p. 33.

[15] Shalash, Najah Mahdi, "Learning and Motor Development of Sports Skills," Al-Ik Printing and Design Press, Baghdad, 2011, p. 210.

References:

1. Ahmed Mahmoud El-Helaly (2003). "Teaching Methods and Strategies." third edition, Dar Al-Kitab Al-Jamee, Al Ain, United Arab Emirates.
2. Mahmoud Dawood Al-Rubaie and Saeed Saleh Hamadamin (2010). "Modern Trends in Teaching Physical Education." Manara Printing Press, Erbil, Iraq.
3. Mahmoud Dawood Salman Al-Rubaie (2011). "Learning and Teaching in Physical Education and Sports." Dhiya Printing and Design, Najaf, Iraq.
4. Mohammed Jasim Al-Yasiri (2010). "Theoretical Foundations of Physical Education Tests." first edition, Dhiya Printing and Design, Najaf, Iraq.
5. Nuri Ibrahim Al-Shawk and Rafae Saleh Al-Kubaisi (2004). "Researcher's Guide to Writing Research in Physical Education." Baghdad.
6. Ali Khwam Al-Jaberi and Ali Hakmat Al-Nuaimi (2021). "Constructivist Theory: Strategies and Applications in Teaching Physical Education and Sports Sciences." Dar Al-Wafaq, Amman, Jordan.
7. Ali Hakmat Al-Nuaimi (2021). "Cognitive Strategies in Physical Education." Dar Al-Wafaq for Publishing, Amman, Jordan.
8. Mohammed Nasr Al-Din Radiwan (2006). "Introduction to Measurement and Testing in Physical Education and Sports." first edition.
9. Najah Mahdi Salah (2011). "Learning and Motor Development in Sports Skills." The Aik Design and Printing House, Baghdad.
10. Qasim Lazam Saber (2012). "Topics in Motor Learning." second edition, Al-Barq Printing, Baghdad.
11. Mohammed Nasr Al-Din Radiwan (2010). "Measurement in Physical Education." Dar Al-Fikr Al-Arabi, Cairo.
12. Laila Al-Sayyed Farhat (2007). "Measurement and Testing in Physical Education." fourth edition, Masr Al-Jadida, Cairo.
13. Wajih Mahjoub and Ahmed Al-Badri (2002). "Principles of Motor Learning." The University House for Printing and Publishing, Mosul.
14. Abdul-Hameed Jabir (1998). "Teaching and Learning: Theoretical Foundations, Strategies, and Effectiveness." first edition, Dar Al-Fikr Al-Arabi, Cairo.
15. Wnaifa Qtaami (1988). "Classroom Teaching Models." Dar Al-Shorouq, Oman.
16. Pressly, M., & Other (1982). "The Mnemonic Keyword Method." Review of Educational Research.