Journal of Physical Education

Volume 37 – Issue (3) – 2025 Open Access

P-ISSN: 2073-6452, E-ISSN: 2707-5729

https://jcope.uobaghdad.edu.iq

The effect of the Appleton model on learning to perform the long jump for first-year students in the College of Basic Education

Rusul Ayad Ghaidan [1]

1 College of Basic Education, Department of Physical Education and Sports Sciences, Al-Mustansiriya University.

DOI:

https://doi.org/10.37359/JOPE.V37(3)2025.2363

Article history: Received 21/ April/2025 Accepted 5/ May/2025 Available online 28/ September/2025

Abstract

The research aimed to prepare educational units according to the Appleton model for teaching the long jump skill to first-stage students and to identify its impact on learning. The researcher adopted the experimental method with two equal groups (experimental and control) using pre- and post-tests. The population consisted of 115 first-stage students in the Department of Physical Education and Sports Sciences, College of Basic Education, Al-Mustansiriya University, for the academic year 2023–2024, distributed across six divisions (A–F). By lottery, two divisions were selected: Division (B) as the experimental group and Division (E) as the control group, with 25 students each (total 50, representing 43.47% of the population). The experimental group learned the long jump according to the Appleton model, while the control group followed the traditional imperative method used in the curriculum. After applying the pre- and post-tests and conducting statistical analyses, results showed that the Appleton model had a significant effect on learning the long jump, as it enhanced motivation through excitement, competition, and engagement, making the learning process easier and more effective. The study recommends adopting the Appleton model in teaching long jump and other sports skills, given its role in achieving educational objectives and improving performance at different age and educational levels.

Keywords: Appleton model, long jump effectiveness.

[1] College of Basic Education, Department of Physical Education and Sports Sciences, Al-Mustansiriya University. rossolayad106@uomustansiriyah.edu.iq.

Journal of Physical Education
Volume 37 – Issue (3) – 2025 Open Access
P-ISSN: 2073-6452, E-ISSN: 2707-5729
https://jcope.uobaghdad.edu.iq

Introduction

Many educational theorists believe that today's learner differs from that of the past due to the remarkable development of cognitive abilities in recent years, driven by technological and electronic openness. This has posed a challenge for both educators and learners to develop instructional models that correspond with learners' cognitive capacities, fostering greater activity and effectiveness to keep pace with rapid progress and adapt to life's accelerating changes and growing demands. The aim is to encourage learners to think and inquire, leading them toward the desired stage of development. Consequently, the teacher's role is no longer confined to transmitting information; rather, it has extended to shaping learners' personalities and broadening their horizons independently. Among the most prominent models are constructivist ones, including the Appleton model, which is an active constructivist educational model that helps learners solve problems, take ownership of their thinking, and promotes inquiry, exploration, and questioning to find solutions by utilizing their cognitive abilities. This, in turn, develops various learner skills, especially decision-making and problem-solving, through steps such as (sorting ideas, processing information, exploring data, and considering the social context) to reach effective learning.

Since the subject of athletics (long jump) in the College of Physical Education and Sports Sciences relies on mastering fundamental skills as a critical basis for progress in performance, attention must be directed to the stages of learning and improving performance by engaging students in problem-solving and developing solutions. Mastery of these skills requires effort and practice; therefore, it is necessary to search for strategies and new teaching models, such as the Appleton constructivist model, to facilitate accurate learning and significantly contribute to skill acquisition.

Based on the above, the importance of the research lies in experimenting with a new constructivist model in physical education in general, and in learning long jump skills in particular, as a scientific attempt to provide broader opportunities for participatory learning and to give students a greater role in stimulating cognitive processes, thus making them more active in learning the long jump skill at the first stage.

The problem lies in the fluctuation of the learning level of the long jump skill among first-stage students at the College of Basic Education – Al-Mustansiriya University. Through the researcher's observation of students' results, particularly in practical lessons, it became clear that learners face difficulties in acquiring the long jump skill despite the teacher's efforts. The researcher therefore believes that mastering this skill requires adopting interactive instructional models that enable students to participate effectively in solving problems that hinder their learning. Accordingly, the study focuses on employing the Appleton constructivist model to examine its

Journal of Physical Education
Volume 37 – Issue (3) – 2025 Open Access
P-ISSN: 2073-6452, E-ISSN: 2707-5729
https://jcope.uobaghdad.edu.iq

impact on the research sample, aiming to transform performance toward the ideal level through educational units that increase learners' motivation and place them at the center of the learning process, shifting from the traditional method to a more effective and engaging one.

Research Objectives

1. To design educational units according to the Appleton model for learning the long jump skill among first-stage students.
2. To identify the effect of the Appleton model on learning the long jump skill among the research sample.

Research Hypotheses

1. There are statistically significant differences between the pre- and post-tests of both the experimental and control groups, in favor of the experimental group, in learning the long jump skill among first-stage students.
2. There are statistically significant differences between the post-tests of the experimental and control groups in learning the long jump skill among the research sample.

Research Fields

1. Human field: First-stage students, College of Physical Education and Sports Sciences – College of Basic Education.
2. Time field: From February 1, 2024, to May 16, 2024.
3. Place field: Athletics field, College of Basic Education, Department of Physical Education and Sports Sciences.

Methodology

Research Sample

The research population was defined as the first-stage morning study students in the Department of Physical Education and Sports Sciences – College of Basic Education – Al-Mustansiriya University for the academic year 2023–2024, totaling (115) students distributed across six sections (A, B, C, D, E, F). The research population was limited to first-stage students, as this stage includes the study of the long jump event. The research sample was selected randomly by lottery among the sections to determine the experimental and control groups. The researcher then randomly selected (25) students from each section as follows: Section (B) with (25) students and Section (E) with (25) students, for a total of (50) students, representing (43.47%) of the research population. The sample was divided into two groups: the experimental group (Section B),

Journal of Physical Education
Volume 37 – Issue (3) – 2025 Open Access
P-ISSN: 2073-6452, E-ISSN: 2707-5729
https://jcope.uobaghdad.edu.iq

which learned the shot put event according to the Appleton model, and the control group (Section E), which was taught using the method followed by the teacher (the imperative style) according to the prescribed physical education curriculum.

Data Collection, Devices, and Tools Used in the Research

The researcher relied on several means of data collection, including Arabic and foreign references and sources, personal interviews, expert and specialist opinion survey forms for grading, data recording forms, the internet, tests and measurement, as well as the exploratory experiment. The devices and tools used in the research included three digital electronic stopwatches (Casio), a Lenovo laptop computer, an athletics field, ten iron balls, a Japanese-made whistle, CDs, and twenty markers.

Procedures

Long Jump Test (Technical Performance Test) (Ibtisam Haider Baktash, 2002)

This test aims to measure the technical performance of the long jump. The tools used include a measuring tape, a take-off board, and a video camera (210 frames/sec). The participant runs a distance of approximately 45 meters as the approach, then takes off without crossing the take-off line and performs the jump forward for the longest possible distance. The test instructions require that the participant does not overstep the take-off board, lands with both feet, and that the jump distance is measured from the take-off board to the nearest mark left by any part of the body in the sand pit. Each participant is allowed three attempts, with the best attempt recorded. The result is measured in meters and parts thereof, and a special form is prepared to evaluate the technical performance.

The researcher conducted the first pilot experiment of the test on a sample of six first-stage students from the pilot study on Sunday, 4/2/2024, at 10:00 a.m., on the athletics field at the College of Basic Education, Al-Mustansiriya University, Department of Physical Education and Sports Sciences. The objectives of the pilot experiment were to:

- Determine the time required to perform the test.
- Verify the validity of the tools used in the research.
- Identify and overcome errors and obstacles that may arise during the pilot experiment.

The researcher conducted the second pilot experiment related to the educational units according to the Appleton model on a sample of first-stage students for the academic year (2023–2024), on Tuesday, 6/2/2024, at 10:00 a.m. The purpose was to determine the suitability of the model for the students, as well as to organize the time frame of the educational units. Based on

Journal of Physical Education
Volume 37 – Issue (3) – 2025 Open Access
P-ISSN: 2073-6452, E-ISSN: 2707-5729
https://jcope.uobaghdad.edu.iq

this, the duration of activities in the other units would be calculated approximately, in addition to assessing the appropriateness of the time allocated to the preparatory, main, and concluding parts of the lesson.

The researcher conducted the pre-test for the shot-put event on the research sample on Thursday, 8/2/2024, at the athletics field, after explaining the necessary instructions and steps for performance and application, as well as preparing all the requirements and materials needed for the tests.

The researcher conducted equivalence testing between the experimental and control groups in the variables related to the study before implementing the educational units on the main research sample. The results showed that the two groups (experimental and control) were equivalent, which is a positive indicator confirming that they are comparable in the research variables. This also indicates that there were no significant differences between the two groups in all pre-tests, as presented in Table (1).

Table 1. *Equivalence of the research groups in the pre-test*

Test	Control (Mean ± SD)	Experimental (Mean ± SD)	T-Value	Sig.	Significance
Approach run	1.9692 ± 0.431	1.931 ± 0.487	1.597	0.204	Not significant
Take-off stage	1.4133 ± 0.356	1.4417 ± 0.328	0.962	0.341	Not significant
Rising	1.1508 ± 0.305	1.054 ± 0.146	1.164	0.335	Not significant
Flight	1.0400 ± 0.213	1.0533 ± 0.178	0.653	0.586	Not significant
Overall performance	5.4708 ± 0.985	5.397 ± 0.836	0.514	0.675	Not significant
Note. Significant at the 0.05 level, df = 48					

The Main Experiment

The main experiment was conducted from Sunday, 11/2/2024, until 3/4/2024, during the second semester, for a period of eight weeks at a rate of two educational units per week, making a total of sixteen units. The duration of each unit was 45 minutes, divided as follows: preparatory part – 7 minutes, main part – 35 minutes, and concluding part – 3 minutes. The educational units were implemented on the research sample by the course instructor under the direct supervision of the researcher, and the designed units using the Appleton model were applied to the experimental group.

- **Number of educational units:** 16 for each system
- **Duration of each unit:** 45 minutes
- **Weekly sessions:** 2 educational units per group

Journal of Physical Education
Volume 37 – Issue (3) – 2025 Open Access
P-ISSN: 2073-6452, E-ISSN: 2707-5729
https://jcope.uobaghdad.edu.iq

Before implementing the prepared educational units, the researcher delivered two introductory units on the long jump skill according to the Appleton model for the experimental group students. These introductory sessions aimed to familiarize them with the new instructional approach represented by the Appleton model, clarify the application of its four stages, and show how they were distributed across the sections of the lesson with appropriate timing. The students were also introduced to the procedures, steps, and objectives of each stage, the teaching aids used (visual aids), and the tools, devices, and exercises involved in the units to ensure clarity for future implementation.

The application of the educational units according to the Appleton model for the experimental group began on Sunday, 11/2/2024, and continued until 3/4/2024 during the second semester, for a total of eight weeks. In case of official holidays, the sessions were compensated on another day. Both the experimental and control groups received their respective units from the same instructor to avoid external influences and ensure accurate results.

After completing the educational units for both the experimental and control groups, the researcher conducted the post-test on Sunday, 7/4/2024, to measure the students' learning of the shot put event. The same test used in the pre-test was applied under identical conditions, supervised by the researcher and the assisting team.

Statistical Analysis

The researcher used Microsoft Excel to enter, organize, and separate the data, as well as to calculate standardized scores sequentially. Additionally, IBM SPSS (Version 20) was employed to obtain statistical measures, including the arithmetic mean, standard deviation, skewness coefficient, independent-samples t-test, and paired-samples t-test.

Results

Table 2. *Shows the means, standard deviations, t-values, and significance of the pre- and post-tests for the experimental group*

Test	Pre-test (Mean ± SD)	Post-test (Mean ± SD)	T-Value	Sig.
Approach run	1.931 ± 0.487	2.385 ± 0.378	3.090	0.010
Take-off stage	1.4417 ± 0.328	2.135 ± 0.361	6.182	0.000
Rising	1.054 ± 0.146	1.9542 ± 0.517	6.259	0.000
Flight	1.0533 ± 0.178	1.3158 ± 0.248	3.669	0.004
Overall technical performance	5.397 ± 0.836	7.790 ± 1.151	6.779	0.000

***Note**. Significant at the 0.05 level, df = 24*

Journal of Physical Education
Volume 37 – Issue (3) – 2025 Open Access
P-ISSN: 2073-6452, E-ISSN: 2707-5729
https://jcope.uobaghdad.edu.iq

Table 3. *Shows the means, standard deviations, t-values, and significance of the pre- and post-tests for the control group*

Test	Pre-test (Mean ± SD)	Post-test (Mean ± SD)	T-Value	Sig.
Approach run	1.9692 ± 0.431	2.3983 ± 0.505	2.301	0.042
Take-off stage	1.4133 ± 0.356	2.0533 ± 0.444	3.400	0.006
Rising	1.1508 ± 0.305	1.8308 ± 0.334	5.030	0.000
Flight	1.0400 ± 0.213	1.468 ± 0.298	3.866	0.003
Overall technical performance	5.4708 ± 0.985	7.7508 ± 1.376	4.937	0.000
Note. Significant at the 0.05 level, df = 24				

Table 4. *Shows the means, standard deviations, t-values, and significance of the post-tests for the experimental and control groups*

Test	Experimental (Mean ± SD)	Control (Mean ± SD)	T-Value	Sig.
Approach run	2.3850 ± 0.378	2.3983 ± 0.505	5.838	0.002
Take-off stage	2.1350 ± 0.361	2.0533 ± 0.444	6.704	0.001
Rising	1.9542 ± 0.517	1.8308 ± 0.334	8.600	0.000
Flight	1.3158 ± 0.248	1.468 ± 0.298	3.264	0.030
Overall technical performance	7.7900 ± 1.151	7.7508 ± 1.376	7.198	0.001
Note. Significant at the 0.05 level, df = 48				

Discussion

It is evident from Table (2) that there are statistically significant differences between the pre- and post-test results in favor of the post-test for the experimental group across all measured tests. The researcher attributes these significant differences to the positive impact of the Appleton model applied to the experimental group. This effect is due to the structured and organized sequence of the educational material according to the model's four stages, each including specific procedures and steps carried out by the students or teacher to achieve the objectives of that stage. Teaching according to this model also involved using visual aids, such as educational posters and instructional videos for each stage, which made the lessons more engaging and reduced boredom, while providing students with sufficient space for individual and collaborative problem-solving. This aligns with Mohamed Saad Zaghloul et al. (2001:32), who emphasized that the use of modern educational tools with diverse capabilities can enhance the effectiveness of teaching methods, increase students' positivity toward the lesson, and stimulate engagement and the acquisition of knowledge more effectively, making lessons more dynamic and providing students with cumulative experiences.Furthermore, teaching the experimental group using the Appleton model positioned the students as the central focus of the learning process, making them active participants. Their engagement in the four stages—sorting existing knowledge, processing new

Journal of Physical Education
Volume 37 – Issue (3) – 2025 Open Access
P-ISSN: 2073-6452, E-ISSN: 2707-5729
https://jcope.uobaghdad.edu.iq

information, exploring additional information, and considering the social context—independently encouraged motivation, autonomy in performing activities, and practical application. This fostered self-confidence and enhanced students' self-perception, which in turn increased their motivation, boldness, and readiness to face skill performance demands, leading to improved performance. This is consistent with Al-Mousawi Abdullah Hassan (2005:119), who highlighted that focusing on the learner, making them the center of activity, respecting their opinions and abilities, and providing encouragement and support are key factors in effective learning. Overall, these factors and procedures contributed to the improvement of the experimental group's post-test performance, confirming that the Appleton model has a positive effect on learning the long jump skill and thereby achieving the study's objectives. It is evident from Table (3) that there are statistically significant differences between the pre- and post-test results in favor of the post-test for the control group across all measured tests. The researcher attributes these differences to the effect of the instructional exercises applied according to the teaching method used, provided that these exercises are scientifically valid in terms of content and implementation to achieve both theoretical and skill-based learning objectives. As Mahmoud Al-Hayla (1999:64) stated, "When curricula are implemented effectively, students' overall performance improves significantly, and they can acquire additional benefits, including developing new ways of learning skills." Furthermore, the primary goal of these instructional exercises is to enhance performance through practice, repetition, and training. The nature of the teaching method and the procedures used has a clear impact on skill development; the longer the period dedicated to skill performance and the greater the number of targeted exercises, the higher the learning rate for the specific skill. This supports the conclusion that well-structured and repeated instructional exercises contribute significantly to improving students' performance levels.

From Table (4), it is evident that there are statistically significant differences between the post-test results of the experimental and control groups, favoring the experimental group in all measured tests. The researcher attributes the experimental group's superior performance to the more effective design of the educational units compared to those of the control group. These units allowed the teacher to explain the material in greater detail and accuracy while linking it to students' prior knowledge and experiences. The teacher's role in these units was that of a guide, mentor, and leader of the learning process, and the positive environment created through the four stages of the Appleton model made lessons more engaging and dynamic. Practical exercises were applied in diverse and novel ways, which enhanced skill acquisition and provided continuous, immediate feedback to correct errors, as noted by Mahmoud Al-Rubaie and Saeed Amin (2010:303), who emphasized that such practices ensure the achievement of learning objectives and refine performance.

Journal of Physical Education
Volume 37 – Issue (3) – 2025 Open Access
P-ISSN: 2073-6452, E-ISSN: 2707-5729
https://jcope.uobaghdad.edu.iq

The Appleton-based units were more effective than traditional methods because they followed a logical sequence, included activities aligned with track and field skills, and organized content in a way that matched students' comprehension levels. The positive learning environment and novel instructional methods encouraged greater student engagement, motivation, and readiness to absorb information. As Qasim Lzaam et al. (2005:60) noted, variety and innovation in exercises and teaching methods generate excitement, enjoyment, and rapid acquisition of motor skills. The experimental group also benefited from supportive instructional tools such as data projectors, visual aids, and educational booklets, which helped students form accurate mental images of skills, connect prior knowledge with new information, and enhance interactive thinking (Al-Khazraji, 2020:43). Using these aids in the practical component of the main lesson increased students' attention, reduced monotony, and prevented distraction, thereby improving understanding. Proper use of instructional tools facilitated precise execution of the approach run, take-off, and landing phases, while promoting interactive thinking required for skill performance. Combined within the Appleton model, these tools made the lessons engaging and enjoyable, minimized boredom, and strengthened motivation, which is essential for effective learning. As Ban Adnan (2007:141) highlighted, organizing and varying skill exercises while using supportive tools stimulates learners' enthusiasm and encourages repeated practice without inducing fatigue or boredom.

Conclusions

Based on the results, analysis, and discussion, the researcher reached the following conclusions:

1. The use of the Appleton model has an effective impact on learning the long jump skill among the research sample.
2. The excitement, stimulation, and competition resulting from using the Appleton model increased students' motivation to perform and facilitated the learning of the long jump skill.
3. The Appleton model enhanced interactive thinking among first-stage students in the Department of Physical Education, College of Basic Education, Al-Mustansiriya University, as it provided students with the opportunity to engage in mental processes more effectively than traditional rote-based methods, following its four-step approach.

Recommendations

1. Adopt the Appleton learning model in teaching the long jump skill.
2. Utilize the Appleton learning model as it facilitates the teacher's process of applying and achieving the set educational objectives.
3. Conduct similar studies on other sports skills and across different age groups and educational levels.

Journal of Physical Education

Volume 37 – Issue (3) – 2025 Open Access

P-ISSN: 2073-6452, E-ISSN: 2707-5729

https://jcope.uobaghdad.edu.iq

References

Abdulghani, L. Y., Abdulghani, M. Y., & Abdulkareem, O. W. (2025). Designing a palm pressure measurement device to improve motor coordination in freestyle swimming among female students. Journal of Physical Education and Sport, 25(7), 1506–1513. https://doi.org/10.7752/jpes.2025.07168

Abdulhussain, A. A., Abdulkareem, O. W., Atiyah, H. S., Jaber, O. H., Ghanim, M. R., Hammood, A. H., & Saleh, Y. M. (2025). The Impact of Jesko's Strategy with Sequential Exercises on Learning the Skill of Dribbling in Basketball. *Annals of Applied Sport Science*, 0–0. https://doi.org/10.61186/AASSJOURNAL.1550

Abdulkareem, O. W., & Ali Hassan, M. F. (2025). impact of mental games on improving shooting accuracy among young basketball players in Iraqi clubs. *Scientific Journal of Sport and Performance*, *4*(3), 342–351. https://doi.org/10.55860/OHNP7224

Abdulkareem, O. W., & Sattar Jabbar, H. (2025). Comparative Biomechanical Analysis of Three-Point Shooting Between Elite Iraqi Basketball Players and International Counterparts. *Journal of Sport Biomechanics*. https://doi.org/10.61186/JSportBiomech.11.3.326

Al-Mousawi, A. H. (2005). *Guide to practical education*. Irbid: Al-Kutub Al-Haditha.

Ban, A. (2007). *The American and training methods for individuals with situational anxiety and their effect on learning some basic skills on the balance beam and retaining them in artistic gymnastics* (Doctoral dissertation). University of Baghdad, College of Physical Education.

Easa, F. A. W., Shihab, G. M., & Kahdim, M. J. (2022). the Effect of Training Network Training in Two Ways, High Interval Training and Repetition To Develop Speed Endurance Adapt Heart Rate and Achieve 5000 Meters Youth. Revista iberoamericana de psicología del ejercicio y el deporte, 17(4), 239-241.

Farida, O., & Atiya, O. (1988). *The effect of using audio-visual aids* (Issue 1, October).

Ghanem, M. R. (2025). The Impact of an AI-Supported Smart HIIT Program on Cardiovascular Fitness and Physical Performance. Modern Sport, 24(3), 370-384.

Ghanim, M. R. (2025). The neurocognitive effect of augmented visual feedback on learning the back handspring skill in gymnastics among college students diverse learning methods. Indonesian Journal of Physical Education and Sport Science, 5(3), 397-407.

Journal of Physical Education

Volume 37 – Issue (3) – 2025 Open Access

P-ISSN: 2073-6452, E-ISSN: 2707-5729

https://jcope.uobaghdad.edu.iq

Hussain, F. M., Shuhaib, M. H., & Hassan, M. F. A. (2024). Psychological Toughness and its Relationship to Some Coordination, Physical Abilities and Accuracy of Some Basic Skills Performance Among The Iraqi Junior National Handball Team Players. International Journal of Disabilities Sports and Health Sciences, 7(Special Issue 2): The Second International Scientific Conference: Sports for Health and Sustainable Development,(SHSD, 2024)), 330-336.

Ibtisam, H. B. (2002). *The effect of using additional feedback on improving the technical and digital performance level of the long jump* (Master's thesis). University of Baghdad, College of Physical Education.

Kadhim, M. J. (2023). Examining The Relationship Between Social Classes And The Culture Of Poverty: A Case Study. International Journal of Social Trends, 1(1), 23-27.

Mahmoud, A., & Saeed, A. (2010). *Modern trends in physical education*. Erbil: Manara Printing.

Mahmoud, M. H. (1999). *Educational learning: Theory and practice* (1st ed.). Amman: Dar Al-Maseera for Publishing and Distribution.

Mohamed, S. Z., & Mohamed, L. S. (2001). *Technical foundations of volleyball skills for teachers and coaches*. Cairo: Center for Publishing.

Qasim, L., et al. (2005). *Foundations of learning and teaching and its applications in football*. Baghdad: B.T.

Ridha, M., Abdullah, H. A., Hamza, G. B., & Abdulhusseni, A. A. (2024). The effect of inverted education on diving and handstand skills on the ground mat. Journal of Computational Analysis and Applications, 33(7), 383-387.