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

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Abstract

The research has been conducted to prepare educational units according to the Appleton model for teaching the skill of long jump to first-stage students and identify its effect on learning. The researcher used the comparative quasi-experimental design with pre-test and post-test for control group and experimental group. Population This study population consists of (115) first-stage students from the Department of Physical Education and Sports Sciences, College of Basic Education, Al-Mustansiriya University, for the academic year 2023–2024 distributed on six divisions: (A–F). Two divisions were chosen by lottery: Division (B) an experimental group and Division (E) control group, 25 students in each division (total 50, which accounts for 43.47% of the population). Experimental subjects learn the long jump according to Appletons model, while control subjects learn it in accordance with the traditional imperative method used in the curriculum. After implementing pre- and post-tests with statistical analyses it was found that the Appleton model did have a significant impact on learning the long jump by increasing motivation via excitement, competition and engagement which facilitated the experience of easier and effective learning. Based on the significance of the Appleton approach in meeting educational aims and performance levels for long jump and other sports skills at various age and educational stages, the most important suggestion arising from this study is to include Appleton model in teaching long jump or other sports skills.

Keywords: Appleton model, long jump effectiveness.

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https://jcope.uobaghdad.edu.iq

Introduction

It can be said that many educational theorists see the learner today as substantially different from those in the past, due to improvements and accessibility of cognitive performance over time primarily related to technological/electronic access. This challenges both educators and learners to formulate instructional models matching the cognitive abilities of learners so that they can remain more engaged and effective while keeping up with the pace of innovation, changes in life styles and increasing demands. The goal is to persuade the learners to think and question, herding them on a path toward achieving that end state of development. As a result, the role of the teacher is no longer limited to passing on messages — it has evolved into crafting learners' personalities and giving them more freedom. Some of the most common models are constructivist ones, such as Appleton model — an active constructivism educational model which helps the learners to become problem-solvers and take ownership for their own thinking by stimulating inquiry explorations and questioning in order to find solutions with existing cognitive powers. This leads the learner skills & decisions including (sorting ideas, processing information, exploring data and considering social contexts) that ensure effective learning.

Because the topic of Athletics (Long jump: 2nd stage) in College of Physical Education and Sports Sciences is based on mastering performance skills in important stages that are always necessary for improvement, it focuses on stimulating the students mental processes during the implementation of fundamental biomechanical problems. These skills can only improve through large amounts of hard work and practice, so searching for methods and new must-have teaching models (Such as the Appleton constructivist model) to ensure proper learning of these skills is absolutely essential in driving quality skill acquisition goals.

From what has been mentioned above, the importance of the research lies in trying a new constructivist model experimental in physical education and learning long jump skills as an attempt scientifically to provide wider opportunities for participatory learning and give students an active role in stimulating cognitive process / processes which will enable them to be more active in learning skill long jump at first stage.

The problem is due to the instability of the level of learning of long jump skill for first stage students in College of Basic Education – Al-Mustansiriya University. The researcher found from observing the students' results in practical lessons, and sometimes alluded to when they wrote that: Even with the teacher's persistent attempts to teach this long jump skill, it was evidence that learners faced difficulties. The researcher thus argues that developing this skill is less about individual effort and more about the need for interactive instructional models that engage students in solving problems that interfere with learning. Hence, the research based its focus on using the Appleton constructivist model and its impact on the research sample as an attempt to

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https://jcope.uobaghdad.edu.iq

shift performance towards ideal in educational units that motivate learners by putting them at the heart of the learner process and transferring from an a traditional approach to one that is more effective and interesting.

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
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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)

Purpose: To assess the technically-timed performance of a long jump. They are measured using a measuring tape, a take-off board and videography (210 frames/sec). The subject runs a distance of ~45m as the run-up, takes off not passing over the take-off line and then jumps forward across for maximal distance. Participants must not overstep the take-off board and must land with both feet, and the distance is measured from the take-off board to the nearest mark by any part of the body in a sand pit. Three attempts are allowed, with the best attempt valid. This result is evaluated in meters and parts of a meter, and is registered on a special form for further assessment of 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 this, the duration of activities in the other units would be calculated approximately, in addition to

Journal of Physical Education
Volume 37 – Issue (3) – 2025 Open Access
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https://jcope.uobaghdad.edu.iq

assessing the appropriateness of the time allocated to the preparatory, main, and concluding parts of the lesson.

As for the pre-test for the researcher, it was conducted on Thursday, 8/2/2024 in the field of athletics after clarifying instructions and steps for performance and application procedures that will be required to conduct and prepare all requirements and materials needed completely.

Before implementing educational units on the main research sample, the researcher conducted equivalence testing between the experimental and control groups in those variables underlying the study. The results indicated that the experimental and control groups were equivalent, which is a good sign confirming that they are comparable in respect to the variables investigated in this study. This also means that both groups were not significantly differ at all pre-tests as shown 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

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

Journal of Physical Education
Volume 37 – Issue (3) – 2025 Open Access
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https://jcope.uobaghdad.edu.iq

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 experimental group was also trained by means of the educational units according to Appletons model (3) that began on Sunday 2-11-2024 and continued up to 3-4-2024 in second semester in totally 8 weeks. If official holidays were involved, the sessions were compensated on another day. The instructors taught both the experimental and control groups their units, ensuring that all variables other than the treatment were controlled.

It should be mentioned that at the end of the educational units for the control and experimental groups, the researcher carried out on Sunday 7/4/2024 a post-test to measure students' learning in relation to teaching shot put. We conducted the same test used in the pre-test under the exact conditions with supervision from the researcher and assistant 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*

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

Journal of Physical Education
Volume 37 – Issue (3) – 2025 Open Access
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https://jcope.uobaghdad.edu.iq

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

Table (2) shows that there are statistically significant differences between the pre- and post-test results in favor of the post-test for experimental group according to all tests taken. The considerable differences in mean responses, the researcher attributes to the effects of Ambleton model use on the experimental group. This is because the educational material has been arranged in a systematic and orderly sequence by four stages, each of which contains procedures and steps carried out either by students or the teacher to achieve the objectives of that stage. Teaching based on this model also included using visuals like teaching posters and instructional videos for each stage that enhanced the lessons, reduced boredom and gave students enough space to solve problems individually or in groups. This is in accordance with the study of Mohamed Saad Zaghloul et al. (2001:32) who described that even the use of modern educational tools provides with a broad array of functionalities, potentially functional improvement to teaching approaches, higher learner positivity toward the lesson and active engagement and cognitive learning more efficiently making lessons dynamic and systematic students experiences. In addition, the experimental group that was taught using Appleton model directed the students themselves as center of learning process involved actively. Engagement in four stages (sort existing knowledge, process new information, explore additional information and social context consideration) would independently encourage motivation, autonomy for performing activities and utility. This cultivated self-confidence and positively influenced students' self-concept which led to increased motivation, thoroughness, and preparedness in performing the skills needed and eventually better

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

performance. This is what was expressed by Al-Mousawi Abdullah Hassan (2005:119), which state that the emphasis should be on focusing on the learner, placing him/her in the center of activity, respecting his/her opinions and abilities, showing attempts to encourage and support. In conclusion, these factors and procedures led to an increase in post-test results for the experimental group confirming that the Appleton model positively impacts long jump learning, thereby fulfilling the aims of this study.【C 核心】. Table (3) clearly shows the presence of statistically significant differences between the pre- and post-test results for each of the measured tests in favor of those who were within the control group. According to the researcher, these differences are attributed to the impact of the instructional exercises applied according to the teaching method used by making sure that those ones in content and implementation met the scientific validity standard in achieving theoretical and skill based learning objectives. – As Mahmoud Al-Hayla, 1999:64 wrote "the more effectively the curriculum is implemented the better students perform overall and can gain other benefits as learning new ways of learning skills". Moreover, these teaching exercises are designed to practice and repeat performance with training why? How the teaching method and procedures used is evidently related to skill development; specifically, it stands to reason that longer durations spent participating (and training) in performance of skills will result in higher outcome rates for specific skills. This adds weight to the conclusion that well-designed and repeated opportunities to practice in advance of exams make a significant difference to students.

As shown in Table (4), it is clear that the differences between the post-test and the pre-test of both groups, whether they were experimental or control, are statistically significant. The experimental group performed better than the control one because of the more efficent design of the educational units conducted. They aided the teacher in providing deeper, more precise coverage of the subject matter and connecting it to students' prior learning and experiences. In these two units, the teacher acted more as a guide, mentor and leader of the learning process; and the four stages of positive appeal in regards to an Appleton model created active and lively lessons. Mahmoud Al-Rubaie, and Saeed Amin (2010:303) stated that in order to make improvement towards skills acquisition, variety of practices were designed and applied while novel entry into both practical design and facilitators since feedback needed correction right after making mistakes.

The Appleton-based units outperformed traditional methods because they provided logical progression, included activities relevant to track and field skill sets, and organized content to students' cognitive processing abilities. This led to a positive learning environment and new ways of instructing students that refined their engagement, motivation, and willingness to learn. As Qasim Lzaam et al. Variety and novelty in exercises and teaching methods cause excitement, enjoyment, and rapid motor skill acquisition (Chen et al., 2005:60). Moreover, the experimental group benefited from supportive instructional tools including data projector programs, visual

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https://jcope.uobaghdad.edu.iq

model presentations, and educational materials such as booklets which facilitated Abstract Conceptualization to help students construct accurate mental models of skills and integrate prior knowledge with new insights (Al-Khazraji, 2020:43). The use of these aids in the practical aspect of the main lesson increased students focused, decreased tediousness, and avoided distractions resulting to better comprehension. Instructional tools were utilized to allow for accurate practice of the approach run, take off and landing phases, while also supporting interactive thinking necessary in performing skills. These tools, accumulated within the Appleton model, rendered the lessons not only engaging and enjoyable, but they reduced diseases of boredom. Sound familiarity breeds motivation: it is that simple and key element to quality leaning success! Ban Adnan (2007:141) also pointed out that, the organization and variation of skill exercises with observation tools encourages learners to feel excited because they do not get impacted by fatigue or boredom while practicing the skill as many times as he can.

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.

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https://jcope.uobaghdad.edu.iq

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Journal of Physical Education

Volume 37 – Issue (3) – 2025 Open Access

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