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The Effect of Problem-Based Learning Instructional Units on Acquiring the Kip-Up Skill on the Horizontal Bar

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Abstract

The research problem emerged from the researcher's observation that many students encounter difficulties in learning certain curricular skills in gymnastics, particularly the kip-up skill on the horizontal bar, which is considered challenging due to the lack of understanding of the correct technique and the inability to visualize the appropriate movement pathway for performing the skill. This prompted the researcher to investigate the problem and attempt to provide a solution. The importance of the study lies in designing instructional units based on the problem-based learning approach and examining their effect on acquiring the kip-up skill on the horizontal bar, with the aim of assisting students in mastering this skill through a modern instructional strategy. The researcher employed the experimental method with two groups, experimental and control, as it was suitable for the nature and objectives of the study. The research population consisted of 247 third-year students in the College of Physical Education and Sports Sciences at the University of Diyala during the academic year 2023–2024, from which a sample of 16 students was selected for the experimental group and 16 for the control group. Pre-tests were conducted prior to the intervention. The results indicated that instructional units designed according to the problem-based learning approach are effective in teaching the kip-up skill on the horizontal bar to students at this level, and the researcher recommended adopting such instructional units due to their positive impact on skill acquisition.

Keywords: Instructional units, Problem-based learning, Kip-up on the horizontal bar.

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Introduction

The concept of the instructional unit is regarded as one of the educational terms that emerged in response to the development of the teaching–learning process, aiming to achieve modern curricula that meet the demands and challenges of the contemporary era. Scholars and experts have long debated the definition of this term until it became established as a curricular framework or organizational method. This aligns with Al-Saeed and Gaballah (2014), who defined instructional units as "a part of the curriculum, a specific organization of the subject matter, and a teaching method that places students in learning situations which, as a whole, form an integrated unit with clear objectives that can be achieved through these situations." Similarly, Fawzi (2014, p.40) stated that "an instructional unit is a set of classroom procedures adopted by the teacher to implement a given subject matter characterized by integration, coherence, and objectivity, placing students in comprehensive learning situations that stimulate their interest and require them to perform diverse activities that allow them to gain specific experiences and achieve predetermined educational objectives." Among the modern teaching strategies is problem-based learning, which, according to Al-Balushi (2009, p.263), "was formally introduced into the field of education and teaching by Barrows, who applied it as a novel and alternative method in training medical students at McMaster University in Canada in the 1950s, by presenting real and authentic problems for students to investigate and generate solutions for." This type of learning encourages students to construct meaning, develop conceptual understanding, and build confidence in their ability to confront new problems in the future and generate scientific and practical solutions independently, rather than relying on ready-made answers. As Zeitoun (1992, p.53) emphasized, this approach makes learning meaningful, purposeful, and far from rote memorization, thereby enhancing students' ability to succeed and experience satisfaction in their learning. In the context of gymnastics, which is considered a demanding and precise sport that often requires instructional support to simplify skill acquisition, educators have sought to provide diverse and accessible learning conditions to accelerate the learning process. As Bormann (1987, p.269) highlighted, "kip movements are among the most important linking movements; despite variations in the starting style and grip, the performance technique remains consistent, as the swing energy is transferred to the trunk upon deceleration, and by using the reaction of support, the body can rise to a higher position on the apparatus." The primary aim of the kip movement, according to Liersch and colleagues (1978, p.70), "is to move the body from a lower level to a higher one by flexing and extending at the hip joint."

After observation and review, the researcher found that most students encounter difficulties in learning certain curricular skills in gymnastics, particularly the kip-up skill on the horizontal bar. This skill is considered challenging for students due to their lack of understanding of the

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correct technique and their inability to visualize the appropriate movement pathway required to perform the skill.

Research Objective: To identify the effect of using instructional units based on the problem-based learning approach on acquiring the kip-up skill on the horizontal bar.

Research Hypothesis :There are statistically significant differences between the experimental and control groups in favor of the experimental group.

Scope of the Study

Human Scope: Third-year students at the College of Physical Education, University of Diyala.

Spatial Scope: The gymnastics hall at the college.

Temporal Scope: From December 17, 2023, to March 26, 2024.

Methodology

The researcher employed the experimental method using a pre-test and post-test design for both the experimental and control groups, as it was suitable for the nature and problem of the study.

Research Sample

The research population consisted of third-year students at the College of Physical Education and Sports Sciences, University of Diyala, for the academic year 2023–2024. The study sample included 32 students selected randomly. The experimental group consisted of 16 students chosen by random draw, and the control group also included 16 students selected in the same manner. Additionally, a pilot sample of 5 students from the third-year cohort, who were not part of the main study sample, was used for preliminary testing.

Data Collection Tools

Sources and References, Arabic and foreign sources, and a results recording form. The equipment used in this study included an HP computer and one Sony video camera, which were employed to record and analyze students' performance during the learning and assessment of the kip-up skill on the horizontal bar.

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Procedures

The study employed several procedures to conduct the research. First, three evaluators were assigned to assess the performance of the kip-up skill on the horizontal bar for all participants in the study sample, using a 10-point scale. A pilot experiment was conducted on December 17, 2023, Sunday, at 8:30 a.m. in the gymnastics hall with five students from the third-year cohort who were not part of the main study sample. The pre-tests for the research sample were administered on Wednesday, December 20, 2023, at 10:30 a.m. in the gymnastics hall. During these tests, the researcher ensured the standardization of all testing conditions, including time, location, equipment, and implementation procedures, to maintain consistency and control across pre- and post-tests. The main experiment was conducted from December 24, 2023, to February 11, 2024, during which the instructional units based on the problem-based learning approach were applied. Each instructional unit lasted 45 minutes, with one unit delivered per week over eight weeks. The subject teacher provided explanations and demonstrations of the skill according to the curriculum for both the experimental and control groups. The control group received traditional instruction, while the experimental group was taught using the problem-based learning approach. The researcher's role was limited to preparing the instructional units, monitoring the progress of the experiment, controlling time and repetition, and supervising the implementation of all instructional units. Post-tests were conducted on Wednesday, February 14, 2024, at 10:30 a.m. in the gymnastics hall under the same conditions as the pre-tests to ensure high reliability of the results.

Results

Table 1: Shows the means and standard deviations for the pre-test and post-test for the experimental and control groups

group	Test	N	Mean	Standard Deviation	Standard Error
Experimental Group	Pre-test	16	2.389	0.054	0.013
	Post-test		5.556	0.029	0.007
Control Group	Pre-test	16	2.432	0.068	0.017
	Post-test		3.902	0.054	0.014

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Table 2: Shows the differences in means, standard deviations, standard errors, t-values, and significance levels for the experimental and control groups.

Variables	Mean Difference	Standard Deviation Difference	Standard Error	t-value	Sig.
Experimental Group	-0.167	0.062	0.015	10.796	0.000
Control Group	-2.500	0.966	0.242	10.351	0.000

Discussion

It can be observed from Table 1 that there are significant differences between the pre-test and post-test in the kip-up skill test in favor of the post-test, indicating an improvement in the performance level of the study sample as a result of the instructional units based on the problem-based learning approach. The researcher attributes this improvement to the fact that students, when exposed to any new learning experience, acquire additional knowledge and skills, as reflected in the performance scores of each individual. This improvement in skill execution aligns with the observations of many experts in the field; Talha et al. (2006) noted that when beginners learn a new sports skill, there are varying performance levels during the initial days of learning, with some learners taking longer and others mastering the skill more quickly, while some fall in between these two extremes. The results clearly demonstrate the effectiveness of the instructional units based on problem-based learning, as they contributed to the development of students' performance at varying rates. Mohamed Odeh Al-Rimawi (1994) emphasized that educational strategies should foster the growth of each learner's problem-solving abilities, encourage self-assessment, and enhance motivation for learning.

Regarding the control group, Table 1 also shows significant differences between the pre-test and post-test in favor of the post-test. The researcher attributes this improvement to the instructional methods employed by the teacher, which contributed to some progress in the control group, although less pronounced than in the experimental group.

Comparing the experimental and control groups in the post-test reveals the superiority of the experimental group's results, which can be attributed to the effectiveness of the instructional units designed according to the problem-based learning approach. The researcher notes that the experimental group outperformed the control group because this approach enhanced specific aspects of learning, including active student engagement and participation in tasks, which contributed to improved performance. In contrast, the control group relied on traditional

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instruction, which primarily involved rote transmission of information and limited application, resulting in lower performance levels and reduced ability to correct mistakes during skill execution. The positive outcomes observed in the experimental group are therefore attributed to the impact of the instructional units and the problem-based learning strategy, which significantly facilitated better skill acquisition in the kip-up test. Farida Ibrahim also emphasized that the most effective learning model involves visual observation, and that learning can be accelerated and enhanced when information is presented and processed through multiple senses.

Conclusions

The problem-based learning approach plays a significant role in promoting the development and acquisition of the kip-up skill. A clear improvement in performing the kip-up skill was observed when applying this approach and organizing the instructional units accordingly, which contributed to this progress. The integration of the problem-based learning strategy had a substantial and effective impact on the learning process, facilitating skill acquisition and enhancing overall student performance.

Recommendations

Emphasis should be placed on using the problem-based learning approach in acquiring the kip-up skill. It is important to employ a variety of modern learning tools in all their forms, as they stimulate interest and increase students' motivation toward the learning process. Furthermore, the use of the problem-based learning strategy is recommended for teaching other sports skills and activities to enhance learning outcomes and engagement.

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References

ABDULGHANI, L. Y., ABDULGHANI, M. Y., & ABDULKAREEM, O. W. Designing a palm pressure measurement device to improve motor coordination in freestyle swimming among female students.

Al-Balushi, A. S. (2009). *Methods of teaching science: Concepts and applications* (1st ed., p. 263). Amman: Dar Al-Maseera for Publishing and Distribution.

Al-Rimawi, M. O. (1994). *Psychology of individual and collective differences in psychological life* (p. 87). Lebanon: Dar Al-Shorouk for Publishing and Distribution.

Al-Saeed, & Gaballah. (2014). *School curricula between authenticity and modernity* (p. 269). Riyadh: Al-Rushd Library.

Bormann, J. (1978). *Gymnastics apparatus* (S. A. Hussein & M. Dhnun, Trans.). Mosul: University of Mosul Press. (Original work published 1978)

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.

Fawzi, A. H. (2022). *The effect of instructional units based on the problem-based learning strategy on cognitive achievement and learning some basic badminton skills for students* (Master's thesis). College of Basic Education, University of Diyala.

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.

Ibrahim, F. (1987). *Motor education for kindergarten and elementary stages* (1st ed., p. 92). Kuwait: Dar Al-Qalam.

Ibthal, R. S. (2021). Effect of corrective exercises according to a model on some biomechanical indicators and performance of handstand and cartwheel skills on the floor exercise mat.

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https://jcope.uobaghdad.edu.iq

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.

Liersch, Y., et al. (1978). *Theoretical foundations in gymnastics* (2nd ed.). Baghdad: Al-Watan Printing Office.

Talha, H. D., et al. (2006). *Learning and motor control: Principles, theories, and applications* (1st ed., p. 80). Cairo: Center for Book Publishing.

Waleed Abdulkareem, O., & Sattar Jabbar, H. (2025). Comparative Biomechanical Analysis of Three-Point Shooting Between Elite Iraqi Basketball Players and International Counterparts. Journal of Sport Biomechanics, 11(3), 326-342.

Yahya, S. Z., Rida, B. K. A., & Abdulkareem, O. W. (2024). The effect of a laser device on some biomechanical variables of the rotational phase in the achievement of 100 m freestyle swimming for the Iraqi team (16-18 years old). Scientific Journal of Sport and Performance, 3(4), 507-512.

Zaitoun, H., & Zaitoun, K. (1992). Constructivism: An epistemological and educational perspective. *Arab Gulf Message Journal*, 77, 53.