International Journal of Experimental Sports Science Research
Volume 2 Nomor 2 July 2026
E-ISSN: 3163-8287

The Effect of Shmeck's Concept Model on Learning Selected Skills on the Horizontal Bar in Artistic Gymnastics among Students of the College of Physical Education and Sports Sciences

Ali Shamil Hussein
Faculty of Education University of Samarra, Iraq
Corresponding Author: ali.shamel@uosamarra.edu.iq

Article History
Received: 21-06-2026;
Reviewed: 21-07-2026;
Accepted: 29-07-2026;
Published: 30-07-2026;

ABSTRACT
Backgroud: The significance of this research lies in the application of the Schmick conceptual model to the teaching of selected parallel bars skills in gymnastics among students at the Faculty of Physical Education and Sports Sciences. The study aimed to determine the effectiveness of the Schmick conceptual model in improving skill acquisition compared with traditional teaching methods. The research problem was formulated as follows; Does the Schmick Conceptual Model have an impact on the teaching of selected parallel bars skills in gymnastics among students at the Faculty of Physical Education and Sports Sciences?
Methods: An experimental research approach was employed to examine the effect of the Schmick conceptual model on the acquisition of selected parallel bars skills. The research sample consisted of students from the Faculty of Physical Education and Sports Sciences. The Schmick conceptual model was applied as the instructional intervention for teaching selected gymnastics skills on the parallel bars.
Results: The findings indicated that the Schmick conceptual model was effective in teaching selected parallel bars skills in gymnastics. The application of the model contributed to the successful implementation and acquisition of the targeted skills among students at the Faculty of Physical Education and Sports Sciences.
Conclusions: The Schmick conceptual model is an effective instructional model for teaching selected parallel bars skills in gymnastics to students at the Faculty of Physical Education and Sports Sciences. Based on these findings, it is recommended that physical education instructors adopt the Schmick conceptual model as a valid educational approach to facilitate the successful teaching, learning, and application of parallel bars skills in gymnastics.

Keywords: Schmick Model; Concepts; Skills; Parallel Bars.

INTRODUCTION

Science is considered the cornerstone of societal development, as it contributes to the advancement of knowledge and skills and to finding solutions to various problems through research and experimentation (Thompson & Blankinship, 2015). In the field of sport, scientific progress has become a key factor in the development of teaching and training methods, as modern educational theories and models have contributed to improving learning processes and the acquisition of motor skills more efficiently, which has had a positive impact on sporting performance and the quality of educational outcomes (Noordhof et al., 2013).

The world is currently witnessing rapid developments in educational and sports sciences, which has necessitated that educational institutions keep pace with these developments by adopting modern educational models that place the learner at the centre of the educational process and contribute to the construction of knowledge, the development of critical thinking, and the

ability to apply what is learnt in practical situations (Trabelsi et al., 2025). The success of the educational process is no longer measured by the quantity of information provided to students, but rather by the extent to which they are able to understand and assimilate scientific concepts and relate them to practical performance, leading to deeper and more lasting learning (Adom et al., 2020; Sunitha & Avanija, 2021).

The teaching of motor skills in physical education and sports science is one of the areas that requires the use of modern teaching models which take into account individual differences amongst learners and help them to form correct concepts of skill performance, because the acquisition of a skill does not depend solely on repetition, but also requires an understanding of the stages of performance and its technical and mechanical requirements, which helps to minimise errors and accelerate learning (Kokstejn et al., 2019; Kokstejn & Musalek, 2019). Among these models, Schmeick's Conceptual Model stands out as an educational model that focuses on organising concepts and linking them to the learner's prior experiences, and gradually reconstructing knowledge, thereby helping to consolidate learning and foster positive student engagement during the learning process. For this reason, Saadi Al-Ghurairi (2003) states "Cognitive learning is a mental process aimed at broadening the learner's understanding; it involves organising, classifying, analysing, encoding and evaluating information, thereby facilitating its comprehension, assimilation and retention in memory, as well as its retrieval when needed, whilst deepening or expanding knowledge in accordance with the desired educational objectives" (Saadi, 2003: 21)

Meanwhile, Yasser and Kazim (1996) view Schemick's model as "a mental activity undertaken by an individual to receive information from the surrounding environment, then process and store it in memory, thereby enabling it to be retrieved and utilised whenever necessary" (Yasser and Kazim, 1996: 4)

Gymnastics is a sport that demands a high level of precision and neuromuscular coordination, owing to the complex skills it involves, which require a proper understanding of the stages of performance and mastery thereof (Duncan et al., 2017; Terrazas et al., 2025). The parallel bars are considered one of the most challenging artistic gymnastics apparatus for students, given the muscular strength, balance, timing of movements and coordination between body parts required whilst executing the skills. Consequently, teaching these skills necessitates instructional methods and models that help students grasp the concepts associated with correct performance, thereby enhancing the speed of learning and the quality of skill execution (Ren & Ma, 2025; Yang et al., 2026).

Hence, the importance of this research lies in the application of Schmeick's conceptual model to the teaching of certain parallel bars skills to students at the Faculty of Physical Education and Sports Sciences, with the aim of determining its effectiveness in improving skill acquisition compared to traditional teaching methods. The research also contributes to enriching the academic field with scientific findings that can be utilised in the development of gymnastics teaching methods, and provides instructors with a modern teaching model that helps to enhance the efficiency of the educational process and improve students' performance in basic skills on the parallel bars.

Research Problem:

The process of teaching gymnastics skills is one of the most complex educational processes, due to the demands of this sport Who is it Accuracy in performance, and an integrated understanding of concepts related to the technical stages of the skill. The IQ device is one of the devices in which students face obvious difficulties during learning, due to the multiplicity of stages of performance and the high level of physical and skill requirements, which makes the adoption of traditional methods alone insufficient to achieve effective and stable learning.

And through khBara, a researcher in teaching gymnastics and his field observation to the students of the Faculty of Physical Education and Sport Sciences, noticed that there is a weakness in the level of learning some skills of the brain system, as well as a clear disparity in the understanding of technical concepts related to correct performance, which reflects negatively on

the quality of the implementation and mastery of the skills. Hence, the problem arose in the following question:

Does Schmick's model of concepts have an effect on the teaching of some skills on the Aqla system in gymnastics among the students of the Faculty of Physical Education and Sport Sciences?

Research Objective:

Identifying the effect of the (Shmik) model of concepts in teaching some skills on the Aqla system in gymnastics for students of the Faculty of Physical Education and Sport Sciences.

The Induction Hypothesis :

The existence of a positive effect of the (SHMIK) model of concepts in teaching some skills on the brain system in gymnastics for students of the Faculty of Physical Education and Sport Sciences.

Research Areas :

1. Al-Bishri: Students of the third stage at the Faculty of Physical Education and Sport Science-University of Baghdad
2. Location: Gymnastics Hall at the College of Physical Education and Sport Sciences-University of Baghdad
3. Al-Zamani: Period from 12/1/2026 to 24/3/ 2026

METHODS

Research Methodology

The experimental method was used in the method of equivalent groups (control and experimental) to achieve the research objectives and address its problem ، Haider Abdul Razzaq (2015)) The experimental method is one of the most capable scientific methods to detect the causal relationships between variables, as it depends on the intervention of the researcher to make an intentional change in the independent variable while controlling other factors that may affect the results of the study, and then following up the effect of that change on the dependent variable or dependent variables, with the aim of explaining the causes of the phenomenon and determining the nature of the causal relationship between the research variables. (Haidar, 2015: 82).

Research Population and Sample:

The research population was determined by the deliberate method They are students of the third stage at the Faculty of Physical Education and Sport Sciences at the University of Baghdad The number of them (180) Student.

I said. (20) students representing a study division were selected to constitute (11.11%) of the original community. They were divided into two groups (control and experimental) by random method and the number of each group became (10) Students, The two eyes were homogenized within each group using the coefficient of difference As in Table (1) The equivalence of the two groups using the (v) test for uncorrelated samples and as in Table (2).

Table 1. Shows the homogeneity of the eyes within the group using the coefficient of difference in the required measurements

Experimental Group			Control Group			Measurement	Research Variables
Divergence coefficient	on	Going to	Divergence coefficient	on	Going to		
0.916	1.562	170.52	0.865	1.475	170.47	Poison	Length
1.328	0.965	72.66	1.179	0.856	72.56	kg	Weight
3.113	0.67	21.52	2.328	0.57	21.47	Year	Age

Table 2. Shows the homogeneity and equivalence of the control and experimental groups with the research variables

Significance Level	sig	Calculated T value	Experimental Group	Control Group	Measurement	Research Variables

			on	Going to	on	Going to		
Insignificant	0.324	0.221	0.745	2.96	0.475	2.895	Degree	Preparatory Section
Insignificant	0.234	0.139	0.856	3.52	0.623	3.471	Degree	Main Section
Insignificant	0.412	0.306	0.475	3.68	0.745	3.77	Degree	Concluding Section
Insignificant	0.432	0.394	0.635	2.86	0.51	2.967	Degree	Full Movement

Means of Information Collection:

Means of data collection:

1. Sources and references.
2. Scientific observation.

Devices and Instruments Used:

1. A regular gymnastics hall.
2. Brainwashing device.
3. Hour stop.
4. Tape measure.
5. Medical scale.
6. Mastaba.

Field Research Procedures:

Identification of Skills:

Rise The researcher identified the technical stages on the Aqla system, which is the prostate movement, which is considered within the subject of gymnastics in the curriculum followed in the faculties and departments of physical education and sports sciences.

Performance Appraisal:

The researcher relied on the performance evaluation of the prostate movement on the Aqla system, which is evaluated by three experts, and takes the arithmetic mean of their results for each part of the movement, which is the score of each penalty of 10 degrees and the full movement is also 10 degrees.

Sections (Parts of Movement) (Mayouf, 1985: 173)

1. Preparatory section: The player stands in front of the bar at an appropriate distance, then holds the bar with an upper fist and a width equal to the width of the chest with the arms fully straight. He then raises the legs with their arms, and begins to bend the hip joints to raise the pelvis, then performs a slight swing of the body forward with the hips extended until the maximum stretch is reached. When the forward stop is reached, the hip joints are quickly bent so that the feet are close to the bar, with the aim of taking the prostate position correctly, while maintaining the Straighten the arms and direct the gaze towards the bar throughout the performance.
2. Main section: The player starts by swinging the body backwards while maintaining the prostate position until it reaches the vertical level, then gradually extends the hip joints with the legs sliding along the bar until they are close to the hips, in conjunction with the rotation of the hands around the bar. At the end of the stretch phase, the torso leans forward with the hands continuing to rotate in preparation for moving to the fulcrum position.
3. Final section: After stopping the tidal movement, the kinetic force generated from the lower limbs is transferred to the torso, which helps the player to reach the forward anchor position in a balanced manner. This is done by extending the hip joints forcefully or gradually, depending on the requirements of the next skill or movement.

Table 3. Shows the evaluation scores in the technical performance of the mind

Full Movement	Conclusion	Main	Preliminary	Movement Sections
10	10	10	10	Grade

Exploratory Experiment:

The researcher conducted an exploratory experiment in 12/1/ 2026 through the application of educational exercises according to the model used to know the appropriate size and time on the same sample for the purpose of rationing the exercises used In addition to knowing and difficulties and its treatment.

Main Experience:

Prerequisites: The pre-exams were conducted on 25/1/2026

Application of the (Schmek) Model:

Educational exercises for skills were applied to the Aqla system according to the levels of the (Shmik) model, which is done in four steps: (Ali, 2013: 22)

First Step: Deep Processing: This stage focuses on the learner's ability to extract and analyze the main ideas of the educational material, through an in-depth understanding of the content and linking its elements to his/her previous experiences and knowledge, thus contributing to building a more stable learning.

Second Step: Clarification (Extended Processing): In this stage, the learner works to link new concepts, facts, and previous knowledge, while interpreting and organizing the information in a way that facilitates its understanding, and the teacher presents the content in a clear and attractive way that enhances the learner's understanding of the material.

Third Step: Application (Consolidation of Knowledge): This stage aims to employ the acquired knowledge in practical situations and activities, as the learner applies what he has learned to solve problems and carry out various tasks, which contributes to consolidating information and developing the ability to use it in new situations.

Fourth Step: Evaluation (Review and Organization): This stage includes following up on the learner's performance and evaluating the extent to which he achieves educational goals, while organizing time and study activities, providing feedback and making appropriate adjustments to teaching or learning methods according to the results of the assessment.

These exercises were applied in the main section of the educational unit during a full lesson and its three sections (see Appendix (1)) for eight weeks and in two educational units, and the application of the program started on 26/1/2026 and ended on 23/3/2026.

Post-Tests: Post-tests were conducted on 24/3/2026.

Statistical Methods: The researcher used the (SSPS) system in statistical processing of the data results .

RESULTS AND DISCUSSION

Table 4. Shows the results of the (T) tests between the arithmetic medians of the pre- and post-evaluations of the control group

Significance Level	sig	Calculated T value	Standard Error	Dimensional		Tribal		Measurement	Evaluation Used
				on	Going to	on	Going to		
Moral	0.00	2.237	0.996	0.745	5.124	0.475	2.895	Degree	Preparatory Section
Moral	0.00	2.743	0.674	0.856	5.32	0.623	3.471	Degree	Main Section
Moral	0.00	2.805	0.467	0.956	5.08	0.745	3.77	Degree	Concluding Section
Moral	0.00	2.517	0.895	0.745	5.22	0.51	2.967	Degree	Full Movement

Table 5. Shows the results of the (T) tests between the arithmetic medians of the pre- and post-evaluations of the experimental group

Significance Level	sig	Calculated T value	Standard Error	Dimensional		Tribal		Measurement	Evaluation Used
				on	Going to	on	Going to		
Moral	0.00	4.226	0.989	0.956	7.14	0.745	2.96	Degree	Preparatory Section
Moral	0.00	3.934	0.967	0.851	7.325	0.856	3.52	Degree	Main Section
Moral	0.00	3.818	0.927	0.865	7.22	0.475	3.68	Degree	Concluding Section
Moral	0.00	3.923	1.074	0.934	7.074	0.635	2.86	Degree	Full Movement

Table 6. Shows the results of the (T) tests between the post-arithmetic medians between the control and experimental groups

Significance Level	sig	Calculated T value	Experimental Group		Control Group		Measurement	Evaluation Used
			on	Going to	on	Going to		
Moral	0.00	4.99	0.956	7.14	0.745	5.124	Degree	Preparatory Section
Moral	0.00	4.98	0.851	7.325	0.856	5.32	Degree	Main Section
Moral	0.00	4.988	0.865	7.22	0.956	5.08	Degree	Concluding Section
Moral	0.00	4.658	0.934	7.074	0.745	5.22	Degree	Full Movement

By observing the tables (4) and (5) we found that there are significant differences between the pre- and post-tests and for the two groups in evaluating the technical performance of the skills on the Aqla system, and this indicates the success of the two groups in education and development of the skills and for the two groups, and for this reason, he sees Saad Mohsen ، (1996) "The educational program contributes to achieving a clear progress in the level of achievement when it is built according to solid scientific foundations, through systematic planning of the teaching process, and the adoption of appropriate teaching methods that are graded in the level of difficulty in accordance with the abilities of the learners, taking into account the individual differences between them. Its success also depends on employing effective teaching aids, supervising competent trainers, and providing an appropriate learning environment in terms of place, time, capabilities and tools used, in order to enhance the effectiveness of learning and lead to improved performance." (Sa'd, 1996: 98).

DISCUSSION

While (Qasim Lazam, 2005) "The application of the educational curriculum in a scientific and organized way contributes to enhancing the learning process, which is reflected positively on the development of the level of skill and knowledge performance of learners, as it leads to the acquisition of knowledge and mastery of skills more effectively" (Qasim, 1996: 56).

By observing Table (6), we found that the experimental group was better than the control group in the application of educational exercises according to the (Shmik) educational model of concepts, which enhanced the teaching of the required skills, and this is seen by (Razzaq Awad Saeed (et al.), 2024. The application of the strategies of the Schmiek model creates a learning

environment that makes the learner a key focus in learning, by employing his intellectual and cognitive potential in a positive way, which contributes to improving the level of understanding and comprehension(Razzaq, 2024: 560).

In the effectiveness of the rational system, the educational model has a great role in education, as he sees (Mohamed Ibrahim Shehata, 2006) "Gymnastics Depends on The learner's ability to Performance Exercises and movements Distinguished With difficulty and in Time The same in the aesthetic form of the ladder (Muhammad, 2006: 35).

And you see (Nawal My soul, 2006) " The educational environment provided by the Shamak model contributes to providing appropriate support to students at the time they need, which helps them better understand concepts and skills, and increases their ability to face and overcome educational difficulties, which positively reflects on achieving educational goals more efficiently. This model also encourages students to research, investigate, and benefit from various learning resources, in a way that contributes to the development of their knowledge, the expansion of their experiences, and the enhancement of their knowledge growth (Nawal, 2006: 29).

CONCLUSIONS AND SUGGESTIONS

Conclusion

1. The 'Schmick' model of concepts is one of the valid educational models for the effective and successful application of skill-based teaching on the parallel bars in gymnastics for students at the Faculty of Physical Education and Sports Sciences.
2. The four steps, along with the explanation and clarification provided by the Schmick model, assist in breaking down the movement, understanding it and applying it effectively on the parallel bars in Gymnastics

Suggestions

1. The adoption of the 'Schmick' conceptual model, as it is one of the sound pedagogical models that facilitates the structuring and successful application of skills training on the parallel bars in gymnastics for students at the Faculty of Physical Education and Sports Sciences.
2. Emphasising the application of the four steps, along with explanations and clarifications in accordance with the Schmick model, to assist in breaking down, understanding and effectively applying the movement on the parallel bars in gymnastics.

REFERENCES

Adom, D., Mensah, J. A., & Dake, D. A. (2020). Test, measurement, and evaluation: Understanding and use of the concepts in education. International Journal of Evaluation and Research in Education, 9(1), 109–119. https://doi.org/10.11591/ijere.v9i1.20457

Ali Hussein Al-Moussawi. Research in Curriculum : 1st Edition, Dar Al-Sadiq for Publishing and Distribution, Babylon, Iraq, 2013.

Duncan, M. J., Eyre, E. L. J., & Oxford, S. W. (2017). The Effectts of 10-Week Integrated Neuromuscular Training on Fundamental Movement Skills and Physical Self-Efficacy in 6-7 Year Old Children. Journal of Strength and Conditioning Research, 32(12), 3348–3356. www.nsca.com

Haidar Abdul Razzaq Kazem Al-Abadi. Fundamentals of Writing Scientific Research in Physical Education and Sport Sciences : Al-Ghadeer Printing and Publishing Co. Ltd., Iraq, Basra, 1st Edition, 2015.

Kokstejn, J., & Musalek, M. (2019). The relationship between fundamental motor skills and game specific skills in elite young soccer players. Journal of Physical Education and Sport, 19, 249–254. https://doi.org/10.7752/jpes.2019.s1037

Kokstejn, J., Musalek, M., Wolanski, P., Murawska-Cialowicz, E., & Stastny, P. (2019). Fundamental motor skills mediate the relationship between physical fitness and soccer-specific motor skills in young soccer players. Frontiers in Physiology, 10(MAY). https://doi.org/10.3389/fphys.2019.00596

Mayouf Dhannoun Hantoush (et al.), Technicaland Educational Principles of Gymnastics and Physical Exercise: Mosul, Faculty of Physical Education, National Library, 1985.

Mohamed Ibrahim Shehata. Fundamentals of Sport Training : Egyptian Library Publishing, Alexandria, 2006.

Nawal Gohi Jani . Information Processing Methods and Their Relationship to Exam Anxiety Female Students of the Teachers Institute: Master's Thesis, Al-Mustansiriya University, 2006.

Noordhof, D. A., Skiba, P. F., & de Koning, J. J. (2013). Determining Anaerobic Capacity in Sporting Activities. International Journal of Sports Physiology and Performance, 8(5), 475–482. https://doi.org/10.1123/ijspp.8.5.475

Qasim is obliged to be patient. Topics in Kinetic Learning: Baghdad, Friday Press, 2005.

Razzaq Awwad Saeed (and others). The Effect of an Educational Curriculum According to the Shamak Model on Cognitive Achievement and Learning the Skills of Passing and Rolling in Football for Students : Wasit Journal for Sport Sciences, Issue 2, Volume 19, 2024.

Ren, Q., & Ma, Z. (2025). Experimental exploration of artificial intelligence and ADAMS simulation technology in the teaching of vertical hoop upward throw in rhythmic gymnastics. PLOS ONE, 20(9 September). https://doi.org/10.1371/journal.pone.0330844

Saad Mohsen Ismail. The Effect of Teaching Methods for Developing the Explosive Power of Legs and Arms on the Accuracy of Long Shot by High Jump in Handball: Ph.D. Thesis, Faculty of Physical Education, University of Baghdad, 1996.

Saadi Al-Ghurairi. Beyond Knowledge: 1st Edition, Debono Center for Teaching Thinking for Publishing and Distribution, 2003.

Sunitha, G., & Avanija, J. (2021). Program Assessment and Evaluation for Continuous Quality Improvement. In Journal of Engineering Education Transformations (Vol. 34, Number 3).

Terrazas, L., Montalvo, S., & Dorgo, S. (2025). Manual resistance training and resistance training elicit neuromuscular strength adaptations but not body composition changes in an 8- week exercise intervention. Journal of Bodywork and Movement Therapies, 42, 810–815. https://doi.org/10.1016/j.jbmt.2025.01.042

Thompson, L., & Blankinship, L. A. (2015). Teaching Information Literacy Skills to Sophomore-Level Biology Majors. Journal of Microbiology & Biology Education, 16(1), 29–33. https://doi.org/10.1128/jmbe.v16i1.818

Trabelsi, O., Ghorbel, A., Romdhani, A., Yaakoubi, M., Bouchiba, M., Souissi, M. A., & Gharbi, A. (2025). A Facebook-mediated blended learning model is associated with enhanced knowledge retention in sports science undergraduates. Journal of Hospitality, Leisure, Sport and Tourism Education, 36. https://doi.org/10.1016/j.jhlste.2025.100538

Yang, H., Cheng, G., & Cheng, S. (2026). Advanced utilization of motion decomposition and visualization technology in gymnastics education. Frontiers in Psychology, 17. https://doi.org/10.3389/fpsyg.2026.1794257

Yasser Amer Hassan, Kazem Ali Mahdi. Information Processing among Students of Qar Youssef University : Journal of the Union of Arab Universities, Issue 33, 199.