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The effect of active learning on improving the performance of some floor movement skills in gymnastics for fifth-grade female students

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Abstract

The research aims to identify the effect of active learning in improving the performance of female students in the class Fifth grade primary for some skills of the floor movements apparatus in gymnastics The research problem included the following question: What is the effect of using active learning in improving performance? Fifth grade students demonstrate some balance beam skills in gymnastics. Using the experimental method by designing the experimental and control groups, representing the community Research on the students of Al-Yaqeen Elementary School in Al-Qadisiyah Governorate for the academic year 20242025 The sample consisted of 40 female students who were divided into two groups, each group(20) female The study was applied in the main section only of the educational units of (30) minutes, where the educational units were prepared Its number is (8) units, which took a period of 4 weeks. which students and the homogeneity and equivalence of the research variables were checked, and the most important results were that Active learning teaching has a positive impact on learning and developing the level of skill performance in Gymnastics skills of the sample. The researcher recommended using active learning as one of the Modern methods of learning gymnastics skills.

Keywords: Active learning, fifth grade, ground movements, Gymnastics.

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Introduction

In light of the rapid developments the world is witnessing across various fields, traditional teaching methods have become ineffective in achieving the desired educational objectives, particularly in areas that require active interaction and participation from learners. In this context, the importance of active learning has emerged as one of the modern instructional approaches that focuses on activating the learner's role and making them an essential partner in the learning process rather than a passive recipient. Active learning includes a wide range of strategies suitable for different educational situations and applicable across multiple educational stages due to their flexibility, attractiveness, and ability to achieve educational goals. These strategies emphasize learner activity and positivity, such as brainstorming, think–pair–share, dialogue and discussion, discovery, problem solving, cooperative learning, role-playing, compare and contrast, and academic games (Ramadan, 2010).

Through active learning, the learner's role shifts from passivity to positivity; instead of being a passive listener, the learner becomes an active participant who uses their thinking, intellect, and abilities collaboratively with peers to reach, process, and benefit from knowledge. Likewise, the teacher's role changes from a lecturer and transmitter of information to a guide and facilitator of the educational process (Haney, J., 2003).

Gymnastics is considered one of the sports that requires significant physical attributes and great effort to master and learn due to the multiplicity of its skills, the difficulty of its apparatuses, performance requirements, varying apparatus heights, and the need for control, precision in skill execution, and evaluation (Adel Saad, 1999). Based on the above, the researcher believes that primary school pupils represent the fundamental base upon which higher levels are built, through educating and preparing them in ways that suit the characteristics of their age stage and the features of each phase. This means that active learning transfers the pupil from being a recipient of knowledge to a researcher and participant in acquiring knowledge and learning skills. The skills of the floor exercise apparatus are among the important skills that require precision, balance, and self-confidence (Qabil Salem, 2020).

In light of modern educational trends, active learning has emerged as one of the effective methods that encourage learner interaction and positive participation, which may contribute to improving skill performance among pupils. As for the research problem, the researcher observed that some fifth-grade primary schoolgirls face difficulties in linking skills or movements on the floor exercise apparatus, which may be attributed to reliance on traditional teaching methods, leading to weak technical performance. Accordingly, the research problem was formulated in the following question: What is the effect of active learning on improving the performance of some floor exercise skills in gymnastics among fifth-grade pupils?

The objectives of the research included identifying the effect of active learning on improving the performance of some floor exercise skills among fifth-grade pupils in gymnastics before and after the application of active learning. The researcher hypothesized that there would be statistically significant differences between the mean scores of pupils' skill performance in the pre- and post-tests when using active learning, in favor of the post-test.

A study by Ahmed Issam (2018) aimed to identify the effect of using active learning on aspects of learning certain skills in physical education for middle school students, using an experimental method with two groups: one control and one experimental. The most important results indicated that the active learning program using the think–pair–share strategy showed a positive effect on cognitive achievement and the level of handball skill performance.

Another study by Yousef, R. T. (2021) aimed to identify the effect of active learning using the small-group method on developing some motor abilities and learning the lay-up shooting skill in basketball for pupils. The researcher used an experimental method with two groups, one control and one experimental. The research sample consisted of 51 pupils, with each group comprising 15 pupils selected randomly. The most important results showed that the educational curriculum applied to the experimental group had a significant effect on developing motor abilities and improving skill performance levels among pupils.

Methodology

The researcher used the experimental method with an experimental design involving two groups, one control and one experimental, applying pre- and post-tests due to its suitability for the nature of the research.

The research population consisted of female pupils from Al-Yaqeen Primary School, numbering 200 pupils, in Al-Qadisiyah Governorate for the academic year 2024–2025. The research sample was composed of 40 fifth-grade female pupils, who were divided into 20 pupils in the control group and 20 pupils in the experimental group. The researcher conducted homogeneity and equivalence tests on the research sample for the variables (height, age, mass, and skills). The results indicated that the sample was homogeneous and normally distributed, as the skewness coefficient ranged between (±3), as shown in Table (1).

Table 1. *Shows the homogeneity and equivalence of the sample (N = 40)*

Variables	Unit of Measurement	Experimental Group (Mean ± SD)	Control Group (Mean ± SD)	Calculated *t*	Significance
Age	Year	130.5 ± 3.2	129.5 ± 2.7	0.44	Not significant
Height	cm	144.4 ± 4.6	143.7 ± 3.6	0.51	Not significant
Body mass	kg	38.1 ± 3.6	37.7 ± 3.3	0.30	Not significant
Cat jump	Score	4.5 ± 1.2	3.3 ± 1.00	0.25	Not significant
Scissor jump	Score	5.2 ± 1.5	4.0 ± 0.3	1.33	Not significant
Wolf jump	Score	4.3 ± 0.2	2.9 ± 0.5	1.35	Not significant

Table (1) shows that the calculated *t*-values are smaller than the tabulated *t*-value (1.69) at the significance level (0.05) and degrees of freedom (38), indicating that the differences are random and statistically non-significant. This confirms the equivalence and homogeneity of the sample.

The research instruments used included

a medical scale, a measuring tape, gymnastics mats, performance evaluation forms, a camera with a stand, and CD discs.

Procedures

Research Tests (Firdous Majeed, 2015):

Cat Jump Test:

The cat jump is considered one of the easy jumps and is therefore introduced to beginners. It is performed on the floor mat and can also be used on the balance beam apparatus. In this test, the learner raises one leg to an angle of (90°), such that the knee joint is level with the hip angle. When lowering the raised leg, the other leg is lifted, while the arms are extended laterally to the sides. The movement resembles that of a cat's jump. The performance is scored out of 10 points.

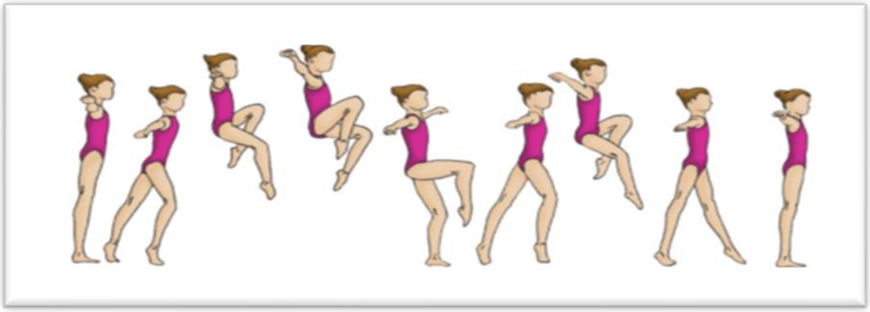

Figure 1. *Cat Jump*

Scissor Jump

As the name indicates, the movement resembles the crossing motion of scissors. The learner raises the right leg forward to a high position, then lifts the left leg so that the two legs cross in the air. The right foot lands first, followed by the left foot in front of it, while the arms are extended laterally to the sides. The movement is performed at the level of the hip joint (Members and Students). The performance is scored out of 10 points.

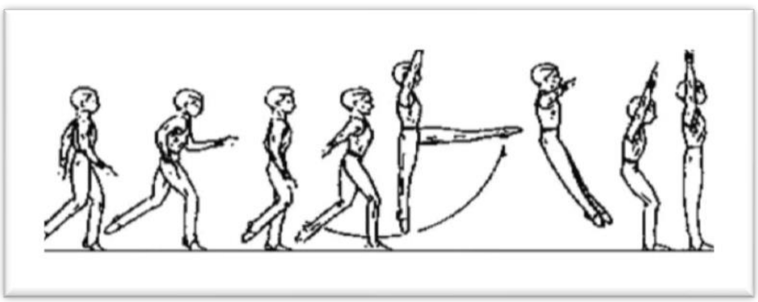

Figure 2. *Scissor Jump*

Wolf Jump

This jump does not differ in value or level of difficulty from the other jumps. From the take-off, the learner raises the right leg extended, with the body slightly bent forward and the arms extended forward. The second leg is kept close to the right leg, flexed, with both legs positioned at the same horizontal level. Performance was evaluated out of 10 points by three evaluators.

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Figure 3. *Wolf Jump*

Table 2. *Shows the scientific bases of the skill tests*

Skills	Reliability Coefficient	Validity Coefficient	Objectivity
Cat Jump	0.82	0.90	0.92
Scissor Jump	0.85	0.95	0.94
Wolf Jump	0.90	0.88	0.94

Reliability was established by administering the test and re-administering it to a sample of 20 female pupils drawn from outside the main research sample. Validity was determined using self-validity, and objectivity was also verified, as shown in Table (2).

The researcher conducted a pilot study on 25/9/2025 with a sample of 10 female pupils who were not part of the original research sample and were excluded from the main experiment. The pilot study helped the researcher determine the appropriate time required to perform the skills.

The pre-tests were administered to the main research sample for both the control and experimental groups on 26/9/2025 for the study variables under investigation. The main experiment was conducted on 27/9/2025 with a sample of 40 female pupils divided into two groups: a control group (20 pupils) taught using the conventional method, and an experimental group (20 pupils) taught using active learning. The experiment was applied only during the main part of the instructional units, which lasted 30 minutes. The instructional units designed for the jumps consisted of 8 units implemented over a period of 4 weeks (Appendix 1).

The post-tests were conducted on 28/10/2025 for the skill tests on the main research sample for both the control and experimental groups. Statistical data were processed using the Statistical Package for the Social Sciences (SPSS).

Results

Table 3. *Shows the means, standard deviations, and calculated and tabulated t-values for the pre- and post-tests of skills for both groups*

Skills	Group	Pre-test (Mean ± SD)	Post-test (Mean ± SD)	Calculated *t*	Tabulated *t*	Significance
Cat Jump	Experimental	4.5 ± 1.2	8.00 ± 3.3	9.00	1.72	Significant
	Control	3.3 ± 1.00	6.00 ± 2.2	4.50		Significant
Scissor Jump	Experimental	5.2 ± 1.5	7.25 ± 2.00	7.80		Significant
	Control	4.0 ± 0.3	5.5 ± 0.88	4.30		Significant
Wolf Jump	Experimental	4.3 ± 0.2	7.20 ± 2.15	10.15		Significant
	Control	2.9 ± 0.5	5.00 ± 0.30	4.60		Significant

Table 4. *Shows the means and standard deviations of the post-tests for both groups in the skills*

Skills	Experimental Group (Mean ± SD)	Control Group (Mean ± SD)	Calculated *t*	Tabulated *t*	Significance
Cat Jump	8.00 ± 3.3	6.00 ± 2.2	4.00	1.69	Significant
Scissor Jump	7.25 ± 2.00	5.5 ± 0.88	6.22		Significant
Wolf Jump	7.02 ± 2.15	5.00 ± 0.30	5.90		Significant

Discussion

The researcher attributes the superiority of the experimental group to the effect of using active learning, which is characterized by ease of presentation and accuracy in delivering information related to skills. This approach helped stimulate the pupils' interest, motivated them to exert effort in learning, and reduced feelings of boredom. Active learning relies on learner positivity and interaction within educational situations and follows a logical, sequential process. It begins with the thinking stage, during which the teacher poses a question or idea and allocates time for reflection, followed by the pairing stage, where each pair of pupils discusses their ideas together. This is then followed by the sharing stage, in which each pair interacts with another pair and exchanges views regarding skill learning.

The nature of the selected skills is relatively simple for the pupils; therefore, enthusiasm, motivation, and a love of competition were evident, and learners interacted actively within and among all groups. This indicates the effectiveness of the learner-centered approach. Teaching through active learning indeed leads to the desired change, namely achieving the planned objectives of the subject, whether cognitive or skill-based (Mohammed Rashid, 2009).

The researcher believes that the improvement in the skill level of the experimental group resulted from active learning, which helped pupils use the information they acquired through self-reliance. Moreover, passing through the stages of learning enabled pupils to understand information more clearly and sequentially compared to other methods. Active learning also contributes to the development of critical thinking, comprehension, and the ability to use learned information and knowledge in different situations, in addition to the teacher’s role in providing feedback and guiding pupils during the exploration phase (Nadia Abbas, 2022).

The researcher further notes that active learning builds knowledge through feedback and the integration of information, which helps accelerate learning and save time. When a pupil works within a group, mutual support and encouragement increase self-confidence and the desire to attempt performance even after initial failure. This intrinsic motivation is considered crucial for performing movements that require balance and courage (Trigueros et al., 2020).

Active learning strategies, particularly cooperative learning, not only improve motor performance but also contribute to the development of social, emotional, and cognitive dimensions among learners, thereby enhancing the quality of comprehensive learning within the educational environment. Accordingly, it can be concluded that using active learning approaches in teaching gymnastics is among the best educational practices that contribute to developing pupils’ performance at both the skill and psychological levels, while also enhancing their positive participation during lessons.

Conclusions

Teaching through active learning has a positive effect on learning and developing the level of skill performance in gymnastics among the research sample. There were statistically significant differences between the experimental group, which learned according to the active learning approach, and the control group, in favor of the experimental group. The study recommends using active learning as one of the modern instructional approaches for teaching gymnastics skills and conducting similar studies on other sports skills and with different samples.

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Appendix (1)
Sample Instructional Unit for Learning the Cat Jump Using the Active Learning Approach

Grade: Fifth Grade (Primary)
Time: 45 minutes
Topic: Teaching the Cat Jump
Place: School Yard
General Objective:
The pupil performs the cat jump correctly from a standing position, with an emphasis on enhancing cooperation.

Section	Time	Formations	Repetitions	Duration	Notes
Main Section					
Instructional	10 min (within 30 min total)	Interactive discussion	4–6 repetitions	3–5 min	Explaining the skill through discussion and asking questions such as: What is the cat jump? When is it used? Explaining the skill using an illustrative board, video, or pictures. Clarifying the correct position of the hands and legs, emphasizing proper knee flexion and safe landing.
Practical	20 min	Small groups (3–4 pupils)	—	—	Pupils are divided into small groups. Each group attempts to imitate the cat movement in place while observing each other and correcting errors. Individual performance on the mat in front of the teacher. Each pupil performs the jump and landing, with rotation among pupils. Emphasis on providing feedback.
Feedback	—	Group discussion	—	—	Asking pupils questions such as: What made you feel comfortable while performing the skill? What could be improved?

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Sample Instructional Unit for Learning the Scissor Jump Using the Active Learning Approach

Grade: Fifth Grade (Primary)
Time: 45 minutes
Topic: Teaching the Scissor Jump
Place: School Yard
General Objective:
The pupil performs the scissor jump correctly, with an emphasis on participation and discipline.

Section	Time	Formations	Repetitions	Duration	Notes
Main Section					
Instructional	10 min (within 30 min total)	Interactive discussion	4–6 repetitions	5 min	Explaining the skill through discussion and asking questions such as: What is the scissor jump? When is it used? Explaining the skill using videos or pictures. Clarifying the correct position of the hands and legs, emphasizing proper leg extension. Focus on balance and dynamic movement.
Practical	20 min	Small groups (3–4 pupils)	—	—	Pupils are divided into small groups. Each group attempts to apply the scissor jump in place, observing each other and correcting errors in front of the teacher. Each pupil performs the skill and landing, with rotation among pupils. Individual performance with encouragement of self-correction or peer correction under teacher supervision.
Feedback	—	Group discussion	—	—	Asking pupils questions such as: What made you feel comfortable while performing the skill? What could be improved?

Sample Instructional Unit for Learning the Wolf Jump Using the Active Learning Approach

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Grade: Fifth Grade (Primary)
Time: 45 minutes
Topic: Teaching the Wolf Jump
Place: School Yard

Section	Time	Formations	Repetitions	Duration	Notes
Main Section					
Instructional	10 min (within 30 min total)	Interactive discussion	3–5 repetitions	5 min	Explaining the skill through discussion and asking questions such as: What is the wolf jump? When is it used? Explaining the skill using videos or illustrative pictures. Clarifying the correct position of the hands and legs, emphasizing full extension of the right leg and flexion of the left leg. Ensuring appropriate warm-up periods.
Practical	20 min	Small groups (3–4 pupils)	—	—	Pupils are divided into small groups. Each group attempts to apply the wolf jump in place, observing each other and correcting errors under the teacher's supervision. Each pupil performs the skill, with rotation between groups. Emphasis on continuous feedback.

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Performance Correction & Feedback	—	Group discussion	—	—	Asking pupils questions such as: What made you feel comfortable while performing the skill? What could be modified or improved? Emphasis on corrective feedback.

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