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THE EFFECT OF THE THIELEN MODEL (GROUP INVESTIGATION) USING SKILLFULL EXERCISES IN LEARNING SOME BADMINTON SKILLS FOR STUDENTS

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Abstract
The aim of the research is to identify the effect of the Thilin s model (group investigation) using skill exercises in learning some badminton skills for students. To identify the superiority of the experimental and control research groups in learning some badminton skills for students, as the researcher used the experimental method in the style of equivalent groups with a test (pre- and post-test), which is what you see as appropriate and consistent with the research specifications, solving the problem and achieving its goals. The research community was determined by the second-stage students of the Department of Physical Education and Sports Sciences, College of Basic Education, Al-Mustansiriyha University for the academic year 2024-2025,(89), and the research sample was selected in a systematic random manner (20) students, and they were divided into two experimental and control groups in a random manner, as the number of each group was (10) students, who represent the research sample. Among the most important conclusions, the application of the Thelen model (group investigation) through skill exercises showed a noticeable positive effect on students' performance in badminton skills, as the accuracy of the strikes and the strength of ball control increased. The model contributed to enhancing the spirit of cooperation among students, which led to improving teamwork and increasing motivation for learning and continuous improvement. As for the research recommendations, it is recommended to expand the application of the Thelen model in other sports fields to enhance educational and social benefits. The need to organize regular training sessions that focus on skill exercises, as repetition enhances the mastery of skills faster.
Keywords: Thelen model (group investigation), skill exercises, badminton skills, students.

Definition of the research
1.1Introduction and importance of the research:
Teaching models are essential tools in the educational process, as they help teachers organize teaching methods and achieve educational goals effectively. These models are based on a set of principles and foundations that contribute to student interaction and motivate them to learn. As for the Thelen model (group investigation), it encourages teamwork and cooperation among students, which enhances critical thinking and problem-solving skills. Therefore, skill exercises in physical education aim to develop basic motor skills such as running, jumping, and balance. These exercises enhance physical fitness, coordination, and concentration, which contribute to the students' athletic success. Badminton is one of the Olympic-approved individual games, which requires the performance of skills with special specifications characterized by accuracy and artistry, and the adoption of complex skill methods, which play a prominent and important role in many matches, especially those in which students are close in physical aspects. This role is evident through continuous training on special exercises that are similar to playing situations, taking into account the gradual progression in order to ensure that students absorb them well, and to ensure that the level of physical preparation and tactical training is consistent with the students' capabilities and mental abilities and their

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ability to absorb. Here lies the importance of the research in the contribution of Thelen's model (group investigation) in improving the learning of badminton skills through skill exercises, as it enhances cooperation between students, which increases understanding and performance techniques, and encourages critical thinking among learners.

1.2 Research Problem

Badminton skills are among the basics that contribute to the development of students' athletic performance. However, educational institutions face great challenges in teaching these skills effectively. It has been observed that many students lack the necessary basic skills, which negatively affects their performance in competitions. Moreover, teachers suffer from a lack of effective teaching aids and teaching methods to motivate students to learn. Therefore, there is a need to study the effect of Thelen's model (group investigation) (group investigation) and the use of skill exercises in improving badminton skills learning, with the aim of providing practical solutions to develop physical education and improve students' performance in this sporting activity.

1-3 Research objectives.

1. Identify the effect of the Thelen model (group investigation) using skill exercises in learning some badminton skills for students.
2. Identify the advantage of the experimental and control research groups in learning some badminton skills for students.

1-4 Research hypotheses

1. Thelen model (group investigation) enhances students' ability to learn basic badminton skills more effectively compared to traditional methods.
2. The use of skill exercises positively affects the level of cooperation and interaction between students while learning badminton skills.
3. Students who are exposed to the Thelen model (group investigation) and practice skill exercises show a significant increase in motivation and interest in badminton compared to their peers.

1-5 Research areas

1-5-1 Human field:

Second-year students, Department of Physical Education and Sports Sciences, College of Basic Education, Al-Mustansiriya University, for the academic year 2024-2025

1-5-2 Time field:

For the period from ..... to .....

1-5-3 Spatial field:

The outdoor stadium, Department of Physical Education and Sports Sciences, College of Basic Education, Al-Mustansiriya University.

3- Research methodology and field procedures:

3-1 Research methodology:

The researcher used the experimental method using the method of equivalent groups with (pre- and post-test), which is what you see as appropriate and consistent with the specifications of the research, solving the problem and achieving its goals.

3-2 Research community and sample:

The research community was determined by the second-stage students of the Department of Physical Education and Sports Sciences, College of Basic Education, Al-Mustansiriya University for the academic year 2024 - 2025, whose number is ( ), and the research sample was selected in a systematic random manner,

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amounting to (20) students, and they were divided into two experimental and control groups in a random manner, as the number of each group was (10) students, and they represent the research sample.
The researcher did not conduct homogeneity because the research was limited to students who are of one age group and the subject is methodological.
In order to divide the sample into two equal groups, the researcher arranged the results of the pre-test for the forward dimension kick in descending order, and then they were distributed successively into two groups of equal number.
3-3 Data collection methods and tools used:
3-3-1 Research tools:
● Personal interviews.
● Tests and measurements.
● Observation.
● Questionnaire.
3-3-2 Devices and methods used in the research:
● Badminton courts, number (2).
● Badminton rackets, number (20) Yonex type rackets.
● Yonex type badminton nets, number (2).
● Badminton poles, number (4).
● Plastic feathers, number (20) each box with a capacity of (6) Yonex type feathers.
● Poles of different heights (1-3 m) number (4).
● Measuring tape.
● Paints and chalk.
● Colored adhesive tape.
● Rubber ropes.
● Wooden benches at a height of (1 m) number (3).
● Stopwatch number (3).
3-4 Determining skills and their tests
The methodological skills of the subject were adopted as the following skills to be the subject of the study.
1- Forehand clearance stroke skill.
2- Backhand clearance stroke skill.
3- Forehand drop stroke skill.
4- Backhand drop stroke skill.
After the researcher adopted some skills in badminton, she sought to survey the sources and references and then identify a group of tests specific to those skills and present them to experts and specialists.
A- Forehand clearance stroke test (1):
B- Backhand clearance stroke test ( ):
C- Forehand drop stroke test: ( )
D- Backhand drop stroke test: ( )
3-6 pilot study.
the researcher conducted a pilot study on 4 students to identify obstacles, and check the readiness of the team, tools, and tests On 10/10/2024.

Table (1)
shows the scientific coefficients of the tests used

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	Reliability Coefficient	Objectivity Coefficient	
The forehand	0,89		
The forehand	0,88		
Front drop shot	0,86		
Back drop shot	0,86		

Third: Test objectivity:
To ensure the objectivity of the test, the researcher used two evaluators when applying the test. After statistically processing the data by finding the value of the correlation coefficient (Pearson) between the results of the evaluators, it was found that the test was highly objective.
Abdul Nabi Al-Jamal. The Arab Encyclopedia of Tennis. Physical and Technical Preparation of Tennis Players. Dar Al-Fikr Al-Arabi. Cairo. 1989, p. 121.
-Ali Saloum Jawad; Ball and Racket Games and Tennis: Ministry of Higher Education, University of Al-Qadisiyah, 2002, p. 78.
-Ammar Jabbar Abbas Al-Shammari, The Effect of Transferring Learning of Some Games Exercises in Acquiring Basic Skills in Tennis, Master's Thesis, Unpublished, University of Diyala, 2005, p. 58.
-Majid Khalil Khamis, The Effect of a Training Method on Different Grounds in Developing the Speed of Motor Response and the Skills of the Forehand and Backhand Strike for Juniors in Tennis, Doctoral Thesis, Unpublished, College of Physical Education, University of Babylon. 2009, p. 49

3-8 Main Experiment Procedures
3-8-1 Pre-test
The researcher conducted the pre-test on 9/27/2024 AD in the hall of Al-Mahawil Sports Club in Babil Governorate for all the skills under study.

Significance	Calculated T value	قيمةT T value	xperimental tests		Control group		Statistical parameters Tests
			ع	x-	ع	x-	
Not significant	2,101	0,356	0,237	0,635	0,260	0,596	The forehand
Not significant		0,284	0,217	0,678	0,255	0,648	The forehand
Not significant		1,037	0,160	0,661	0,205	0,575	Front drop shot
Not significant		0,517	0,179	0,546	0,152	0,508	Back drop shot

*Under degree of freedom (9) and significance level 0.05

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4-2 Presentation and analysis of the performance level of the pre- and post-tests of the experimental group:
Table (4)
The values of the arithmetic mean, standard deviations, and the calculated and tabulated (t) value for the research tests between the pre- and post-measurements of the experimental group

significance	Calculated T value	قيمةT T value	Post-test		Pre-test		Statistical parameters Tests
			ع	x-	ع	x-	
Significant	2,262 21	13,000	0,371	1,70	0,237	0,635	The forehand
Significant		6,198	0,411	1,342	0,217	0,678	The forehand
Significant		6,134	0,149	0.978	0,160	0,661	Front drop shot
Significant		11,338	0,271	1,105	0,179	0,546	Back drop shot

*Under degree of freedom (9) and significance level 0.05

Table (4) shows that the calculated values of the (t) test were greater than the tabular values, indicating the presence of significant differences between the pre- and post-tests, in favor of the post-test, which supports the research hypothesis. The researcher attributes these differences to the effectiveness of the Thelen model (group investigation) (group investigation) skill exercises that contributed to learning badminton skills among the members of the experimental group. These exercises were characterized by diversity and excitement, and were close to the nature of the game. Focusing on developing students' skills and using them in play during competitions enhances experience and excitement, which in turn may improve students' performance in applying skills. The researcher also attributes the differences to the group investigation model adopted by the experimental group, as it used skill exercises that were designed systematically and according to graded levels of difficulty, which gave learners a greater role in solving motor tasks. This method enhances self-reliance and independence, which helps in facing the changing challenges during play through the stages of the Thelen Model (group investigation). "A process of negotiation and group investigation that begins by presenting a topic, problem or issue that arouses the interest and inclinations of students and asks them to address it and express their opinions towards it, where the student's role is determined by investigation and inquiry to reach solutions and extrapolate on them and apply them within the conditions of a cooperative group dynamic" (1) The researcher also confirms that the Thelen Model (group investigation) is considered one of the basic models in the field of physical education, as it plays a vital role in developing students' skills. It enhances a deep understanding of the laws and strategies associated with sports games, which enables students to make better decisions during play. The researcher also indicates that this model contributes to improving students' motor skills through learning based on practical experience, which makes the learning process more effective and positive. In addition, "Thelen's model (group investigation) encourages social interaction among students, which enhances the spirit of cooperation and communication, which is essential for developing social skills" (1). Adopting this model in physical education is a positive step towards achieving comprehensive and enjoyable learning. The use of skill exercises enhances students' learning, especially in games that include defense and attack aspects. The greatest benefit comes from teaching students by investing in different game situations, which increases the learner's independence and ability to detect his mistakes.

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(1) Kifah Mohsen Abdullah; The effect of teaching according to Thelen's group investigation model on the achievement of chemistry and research awareness among second-year middle school students, published research, Journal of Psychological Sciences, 2023, Volume 24, Issue 1, p. 563. .
(1) Ammar Mu'ayyad Shaha and others; The effect of the social investigation model on learning the skills of passing from above and below in volleyball, published research, Journal of Physical Education, 2019, Volume 31, Issue 12, p. 179.
(1) Hind Thaer Diab; The effect of complex skill exercises on developing the skills of serving and smashing in sitting volleyball for the Wasam Al-Majd Club, published research, Journal of the College of Basic Education, 2013, Volume 19, Issue 77, p. 716.
The researcher also emphasizes the importance of skill exercises that are close to the nature of play, as they help learners to identify a variety of applications, which enhances effective interaction during performance. "Skill exercises are essential in learning skills, as they help enhance understanding and practical application. Through repetition and practice, learners can improve their performance and increase their self-confidence. They also give them the opportunity to deal with different challenges, which enhances their flexibility and ability to adapt. These exercises contribute to developing efficiency and excellence in different fields" (1).
4-3 Presentation and analysis of the performance level of the post-tests for the experimental and control groups:

Table (5)
The values of the arithmetic mean, standard deviations, and the calculated and tabulated (t) value for the post-research tests for the experimental and control groups

significance	Calculated T value	ق T value	Post-test		Pre-test		Statistical parameters Tests
				$\bar{x}$		$\bar{x}$	
significant	2,262 21	13,000	0,371	1,70	0,237	0,635	The forehand
significant		6,198	0,411	1,342	0,217	0,678	The forehand
significant		6,134	0,149	0.978	0,160	0,661	Front drop shot
significant		11,338	0,271	1,105	0,179	0,546	Back drop shot

Table (5) shows that the calculated values of the (t) test were greater than the tabular values, which means that there are significant differences between the post-tests of the experimental and control groups in favor of the control group. The researcher attributes the significant differences in the skills under investigation in favor of the experimental group to the effectiveness of the Thelen model (group investigation), which is one of the effective educational methods based on John Dewey's ideas about the importance of education in a democratic framework. This model allows students to be active in the learning process instead of being spectators. The Thelen model (group investigation) is considered one of the basic educational models in the field of cooperative learning, as it contributes effectively to the development of scientific thinking among students. This model focuses on enhancing interactions within small groups, which leads to achieving positive academic and social results. It allows students to think about lesson topics from multiple angles and express their

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opinions in a democratic manner and in a scientific spirit. "The importance of Thelen's model (group inquiry) lies in the fact that it enhances the understanding of basic concepts, which helps in exchanging knowledge in a way that links the different elements in the educational process. It allows students to identify similarities between what they have previously learned and the new situations they face" (1)

Learning skills is one of the most prominent challenges facing teachers, as it requires a shift from simply conveying information to helping students form mental habits that contribute to dealing with a changing society. While facts and information can be learned through memorization and recall, the deeper goal is to enable students to acquire concepts and apply them in new situations that they have not previously known

(1) Wathiq Abdul Karim and Zainab Hamza Raji; The Constructivist Approach: Models and Strategies in Teaching Scientific Concepts, Noor Al-Hussein Library for Publishing and Distribution, Baghdad, 2012, p. 98.

Therefore, "Thelen's model (group investigation) plays a pivotal role in developing students' educational skills, as it encourages them to think critically and develop their abilities to analyze and infer, which leads to improving their performance.(1) "

The researcher also attributes the superiority of the experimental group to the application of skill exercises. Skill exercises are considered essential elements in learning motor skills, as they play a major role in improving the performance and techniques of players in various sports. When practicing the forehand clearance skill, the player can gain greater accuracy and strength in hitting the ball, which makes it easier for him to achieve goals. When we move to the backhand clearance skill, it develops the player's ability to move quickly and interact immediately with the ball, which enhances his reaction in different situations. As for the forehand drop shot skill, it helps the player master ball control during attacks, which makes it easier for him to implement effective offensive strategies. Speaking of the backhand drop shot skill, this skill enhances the player's ability to implement advanced defensive strategies, which raises his performance level on the field. All of these skills, when trained regularly, contribute to improving coordination and self-confidence, which ultimately leads to outstanding athletic performance. "Skill exercises contribute to improving athletic performance by developing the accuracy and strength of ball strikes, enhancing reactions, and facilitating offensive and defensive strategies, which leads to better coordination and increased self-confidence among players.(1) "

(1)Wafaa Suwaidan Ali (2010): The effectiveness of the group investigation model in the achievement of second-year intermediate female students in biology and their skills in scientific thinking, (unpublished master's thesis), College of Education / Ibn Al-Haitham, University of Baghdad., p. 86. (1) Hafl Khorshid Rafiq (2004) The effect of physical skill exercises on the basis of interval training on a number of physical, skill and functional variables for youth soccer players, unpublished doctoral thesis, College of Physical Education, University of Mosul, Iraq, 2004, p. 76.

5 Conclusions and Recommendation

5.1Conclusions

1. The application of the Thelen Model (group investigation) through skill exercises showed a significant positive effect on students' performance in badminton skills, as the accuracy of strikes and the strength of ball control increased.

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2. The model contributed to enhancing the spirit of cooperation among students, which led to improving teamwork and increasing motivation for learning and continuous improvement.
3. It was noted that students who participated in teaching using the Thelen Model developed their self-confidence, which positively affected their performance in matches.
4. Participants showed greater positive interaction with the teacher and their colleagues, which helped create a stimulating learning environment that led to achieving better results.

5.2Recommendations

1. It is recommended to expand the application of the Thelen Model in other sports fields to enhance educational and social benefits.
2. The need to organize regular training sessions that focus on skill exercises, as repetition enhances the mastery of skills faster.
3. Use educational technology such as educational videos and interactive applications to facilitate the understanding of new technologies.
4. Organizing friendly competitions between students to enhance the spirit of challenge and healthy competition, which contributes to improving skill performance. 5. Emphasizing the need for workshops for teachers on group investigation methods and the importance of cooperation between players to maximize positive results in physical education lessons.

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