

THE IMPACT OF USING THE TEACHING METHODS OF (GUIDED DISCOVERY, TRAINING) ON LEARNING SOME SKILLS OF GROUND MOVEMENTS IN ARTISTIC GYMNASTICS FOR MEN AMONG THE STUDENTS OF THE FACULTY OF SPORTS SCIENCES AT MU'TAH UNIVERSITY

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Abstract

This study aimed at identifying the impact of using the teaching methods of the (guided discovery, training) on learning some skills of ground movement in artistic gymnastics. The study sample consisted of (38) students from the faculty of sports sciences at Mu'tah University who are enrolled in the course of Gymnastics 1 during the second semester of the academic year 2021-2022, where they were distributed randomly into two identical groups: the first group applied the guided discovery method, and the second group applied the training method. In order to achieve the study objectives, the researcher used the experimental approach due to its compatibility to the study nature. The researcher used the statistical methods represented by means, standard deviations, Pearson correlation coefficient and (t-test).

The results showed that using the two methods of guided discovery and training method positively affected learning the skills of gymnastics (backward roll, forward roll, handstand). When comparing the results of the pre and post measurement, the method of guided discovery was favorable.

In the light of the results, the study recommended the necessity of urging the methods of guided discovery and training due to their positive effect on teaching the skills.

Key words: Guided discovery method. Training method. Teaching method.

Abstracto

Este estudio tuvo como objetivo identificar el impacto del uso de los métodos de enseñanza del (descubrimiento guiado, entrenamiento) en el aprendizaje de algunas habilidades de movimiento de suelo en la gimnasia artística. La muestra de estudio estuvo conformada por (38) estudiantes de la facultad de ciencias del deporte de la Universidad Mu'tah que se encuentran matriculados en el curso de Gimnasia 1 durante el segundo semestre del año académico 2021-2022, donde fueron distribuidos aleatoriamente en dos grupos idénticos: el primer grupo aplicó el método de descubrimiento guiado y el segundo grupo aplicó el método de entrenamiento. Para lograr los objetivos del estudio, el investigador utilizó el enfoque experimental debido a su compatibilidad con la naturaleza del estudio. El investigador utilizó los métodos estadísticos representados por medias, desviaciones estándar, coeficiente de correlación de Pearson y (t-test).

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Los resultados mostraron que el uso de los dos métodos de descubrimiento guiado y método de entrenamiento afectó positivamente el aprendizaje de las habilidades de la gimnasia (girar hacia atrás, girar hacia adelante, parada de manos). Al comparar los resultados de la medición pre y post, el método de descubrimiento guiado fue favorable.

A la luz de los resultados, el estudio recomendó la necesidad de impulsar los métodos de descubrimiento guiado y entrenamiento por su efecto positivo en la enseñanza de las habilidades.

Palabras clave: Método de descubrimiento guiado. Método de entrenamiento. Método de enseñanza.

Introduction

Modern science confirmed that teaching is the basic element in teaching, learning and acquiring the various sports skills, since the diversity in selecting the teaching methods and strategies has become a desired objective that attracted a particular attention, since it helps the learner achieve the targeted objectives of teaching; these include the objectives adopted and aimed to be achieved by the educational policies in the community. Also, teaching plays an important role in shaping and developing the learner's personality, so that he has an effective personality that can achieve the required educational objectives. Accordingly, the process of selecting the appropriate strategy contributes to stimulating the learner's motivation and enhancing his enthusiasm. Therefore, the individual has an effective participation through which he interacts with the teacher and other peers, who are considered as the basic element in the educational process.

Indeed, there has been an urgent need to determine and clarify the concept of teaching in the current era, especially after the emergence of more developments and advances in the field of teaching and the increase in facts and concepts qualitatively and quantitatively. These departments resulted in overlap in the used terms and a lack of clarity for many of them among specialists. Also, the complexity and diversity in the phenomenon of teaching as well as the various opinions of researchers concerning them resulted in the emergence of many new terms that reflect this variation. For example, the terms of teaching skills were introduced in the domain of teachers' preparation, the terms of teaching entrances and teaching models in the domain of dealing with the educational material, and the terms of teaching activities and teaching

methods in the domain of the learning environment (Himdi, 2009).

In the light of the above-mentioned, we can say that there is no ideal teaching method that is appropriate for all skills, students, stages or for all times. Therefore, any teaching method can be applied in more than one way according to the nature of the teacher and the characteristics he has; achieving a certain objective may require the teacher to use more than one strategy or method in teaching. Accordingly, the educational process depends on the teacher's ability to understand the elements of the educational situation (objective, skill, learner, time, textbook, and available potentials) and use the appropriate teaching methods, since the successful teacher is the one who employs the methods and strategies to easily achieve the targeted objectives and outcomes (Al-Hayik, Sadeq AbdulRahman, Ashraf, 2022).

The method of guided discovery is considered as the first method that engages the learner in the processes of discovery by posing various questions by teachers to students; each question has one responses that learners discover through training and practice. The main idea of this approach is engaging the learners in mental processes that aim to discover based on practical practice in order to establish an accurate relationship between the response and the question (stimulation- mental processes - response), which means that this approach develops the learner's ability to learn the various discovery skills by answering the consecutive questions that lead to acquiring the skill as a whole (Al-Hayek, Sadeq, 2018).

The discoveries taking place around us manifested several new teaching strategies and methods. Therefore, teachers should look for the most optimal methods that are suitable for the nature and characteristics of learners and compatible with the conditions surrounding them. Also, teachers should be informed about the appropriate methods that enable them to learn the different skills in order to identify the distinction between the methods of teaching skills. As for the approach of guided discovery investigated in this study, it is mainly based on a method that depends on the learner, where the learner learns the skill depending on himself before referring to the teacher to provide him with the guidelines of the skill, but the other details are delegated to the learner himself, who discovers them by himself and lately corrects them by the help of the teacher. Therefore, the importance of the study lies in using the method of guided discovery in a level that supports the basic skills in gymnastics among the students of the faculty of sports sciences at Mu'tah University.

The Study Problem

The success of the educational process depends on the accurate selection of the suitable teaching method according to the targeted learners and the extent to which the required potentials exist to implement the employed strategy well and prepare the educational environment for implementing it appropriately. Indeed, the diversity in using the new methods and strategies paves the way for new horizons among students, and the teacher and learner have the experience to choose the optimal ways to promote the educational process which, in turn, contributes to reaching higher levels in the educational process.

Therefore, the researcher suggested experimenting and using the method of guided discovery as compared to the training method in teaching the skills of artistic gymnastics on the mat of ground movements, where the teacher can focus on the learner's efforts to know the outcomes and recognize the differences in teaching between this method and the training method. This is one of the first studies that compared these two methods, particularly in gymnastics.

The Study Importance

The educational process consists of a number of basic elements; these are the teacher, learner, objectives, educational outcomes, skill, lesson content, employed devices and materials, methods and strategies, steps and procedures used to coordinate the lesson, classroom management and evaluation. In fact, all these elements require a highly qualified teacher who has the experience to use the methods to achieve the targeted objectives. The methods and strategies of teaching are amongst the most important element, where they are viewed as the joint element that helps the teacher achieve as many objectives and outcomes as possible concerning the teaching material and the learner (Al-Hayek, Sadeq AbdulRahman, Ashraf, 2022).

The role of teacher in the method of guided discovery is considered as a guide that encourages students to search and explore through the thoughtfully motivating questions and situations that challenge their thinking and encourage them to search, observe, evaluate and predict. The student is an active participant within the educational process and takes a part of his learning responsibility, where the teacher provides students with the necessary materials and equipment that help them discover the solution and organize the educational material themselves. In this vein, students are given the opportunity to discover the relationships between the parts of the educational material by the help of teacher- the student is the basic element in the educational process and the teacher's role is related to guiding students and motivating them to discover (Al-Rabi'e, 2010).

The importance of the study lies in the following

- The method of guided discovery may provide the student with the characteristics of search, discovery, and implementation for the required skills effectively.
- Teaching methods develop the learners' skilled learning which, in turn, allows students to participate in dialogue, discussion and thinking with the teacher and other colleagues; this has the potential of developing the student's personality and gives him leadership traits in the future.
- Contributing to developing and modifying the educational programs in order to be compatible with the students' needs and dispositions, with the necessity of providing regular feedback and correcting the learner's mistakes.

The study objectives: The study aimed to achieve the following objectives:

1. Identifying the impact of using the method of guided discovery on learning some skills of ground movement in artistic gymnastics among the students of the faculty of sports sciences.
2. Identifying the impact of using the method of training on learning some skills on the ground movement mat in artistic gymnastics among the students of the faculty of sports sciences.
3. Identifying the differences between the group of guided discovery method and the group of training method in learning some skills on the ground movement mat in artistic gymnastics among the students of the faculty of sports sciences.

The study hypotheses: In order to achieve the study objectives, the following hypotheses were cited:

1. There are statistically significant differences at ($\alpha \leq 0.05$) for using the method of guided discovery in teaching some skills of ground movement in artistic gymnastics among the individuals of the first group.
2. There are statistically significant differences at ($\alpha \leq 0.05$) for using the method of training in teaching some skills of ground movement in artistic gymnastics among the individuals of the second group.

3. There are statistically significant differences at ($\alpha \leq 0.05$) between the first group that used the method of guided discovery and the second group that used the training method in teaching some skills of ground movement in artistic gymnastics among the students of the faculty of sports sciences at Mu'tah University.

The study terms:

1. Teaching method: it is a set of teaching models used by the teacher.
2. Guided discovery: it is a type of self-inquiry learning under the supervision of a teacher, where it depends on intellectual interaction between the teacher and the student; the teacher asks consecutive questions and students respond. Any question by the teacher receives one answer from students; hence, a number of consecutive questions is followed by a number of motor responses that lead to the discovery of motion (the targeted motion objective) (Farghali, 2002).

3. The method of training: Al-Thiabat (2010), as cited from (Mosstan, 1991) defined it as a number of tasks performed by the learner in order to briefly recognize the card of tasks that include skilled and artistic performance, where the teacher prepares the card to help learners perform all the sections of the lecture tasks (preparatory, main and final).

The Study Limits

The human limits: the students of Gymnastics (1) in the faculty of sports sciences at Mu'tah University, who are enrolled in the academic year 2021-2022.

The temporal limits: the second semester of the academic year 2021-2022.

The spatial limits: gymnastics hall- the faculty of sports sciences at -Mu'tah University.

The study procedures: the researcher used the experimental approach due to its compatibility to the study nature and objectives.

The study population: all the students of the faculty of sports sciences enrolled in the second semester of the academic year 2021-2022.

The Study Sample

The study sample consisted of (38) students enrolled in the course of Gymnastics (1), who were divided into two groups. The first group applied guided discovery method, while the second group applied the training method, where each group consisted of (18) students.

The study instrument: the study used the educational program, which was developed by the teacher based on the previous researches and studies relevant to the teaching methods of guided discovery and training.

The study variables: the study included the following variables:

The Independent variable: guided discovery method and training method (the educational program of the two methods).

Dependent variable: the skills of ground movement in artistic gymnastics (backward roll, forward roll, handstand).

The Study Procedures

The researcher performed the following steps: First, determining the study sample

Second, after reviewing a number of scientific resources and references and previous studies, the researcher developed the training program in its final image.

Third, the researcher conducted a pilot study during (20/2/2022 – 25/2/2022) on a pilot sample that consisted of (7) students from the faculty of sports sciences enrolled in the course of Gymnastics 1, where those students were excluded from the main sample individuals, and the experiment was applied to them in three educational units. The pilot study aimed at:

- Identifying the suitability of the hall and equipment of gymnastics and verifying the procedures of security for conducting this study.
- Identifying the extent of implementing the selected teaching methods inside the Gymnastics hall.
- Identifying the suitability extent of the teaching methods, in terms of their clarity and students' understanding to their nature and the available information, in addition to demonstrating the obscure content and answering the students' questions.
- Identifying the optimal order for performing the physical and skilled tests and identifying the suitable time and place to hold them.

Fourth, the pre skilled measurement was performed in the first week, where the score was calculated by taking the average mean of three trials for each student by the team of the referees who performed the pretest.

Fifth, applying the program:

- The partial-total method was used in teaching the basic skills in gymnastics for the individuals of the first and second groups.
- The first group was taught using the guided discovery method, where the researcher introduced the units. The researcher clarified the technical steps of the skills, offered clarification models by performing some models by the teacher of these skills, corrected the mistakes, and then moved to the practical domain by the help of the assisting team to complete the educational units.
- The second group used the training method by preparing ready worksheets that include all the lesson parts, from warm up to applying and mastering the skills; the researcher clarified performance time, number of repetitions as well as the artistic and educational steps graded according to the skill steps, till the point of mastering the skill.

Sixth, post measurement: the skills were evaluated by the specialists and arbitrators' committee who performed the pre measurement at the beginning of the study.

Due to the importance of finding homogeneity among the sample individuals, the researcher used means, standard deviations and (t-test) to prove that the sample is taken from a homogeneous population, as illustrated in table 1 (Table 1).

Table 1 shows the calculated values for the means, standard deviations and t-value between the experimental and control groups in the variables of age, height and weight. (t) calculated values ranged between (0.18-0.28), as compared to (t) tabulated value of (2.16) at the significance level of ($\alpha \leq 0.05$), indicating that there are no statistically significant differences in these variables between the two groups (Table 2).

Table 2 shows the means, standard deviations and (t) calculated value between the two groups for the skills of ground movement in artistic gymnastics in the pre measurement. We can see that (t) calculated values were less than the (t) tabulated value of (2.16) at the significance level of ($\alpha \leq 0.05$), indicating that there are no statistically significant differences in these skills between the two groups in the pretest, and thus we conclude that the two groups are equivalent.

The Scientific Coefficients for the Study Tests

Validity: In order to verify the content validity and face validity, the researcher introduced the study instrument to a number of specialists and arbitrators from the experienced faculty members in gymnastics and teaching methods, and their opinions were taken in consideration concerning the modification of the final version of the study instrument, as shown in appendix 1 (Appendix 1).

Reliability: In order to verify the instrument's reliability, the researcher used

the method of (test-retest) on a pilot sample from outside the individuals of the main sample, with a total of (7) students, where a period of (7) days was between the two applications. Also, Pearson correlation coefficient was calculated to find the degree of reliability.

The statistical processing: The researcher used (SPSS) for:

1. Calculating the means and standard deviations for the study variables.
2. Calculating the median and the percentage for the variation.
3. Performing (t-test) for the differences between the pre and post measurement according to the study variables.
4. Pearson correlation coefficient to calculate reliability.

Displaying and Discussing the Results

First, the results related to the first hypothesis: There are statistically significant differences at ($\alpha \leq 0.05$) for using the teaching method of guided discovery in learning some ground movements skills in artistic gymnastics among the individuals of the first group (Table 3).

Table 3 revealed that there are statistically significant differences between the pre and post tests for the skills of (backward roll, forward roll, handstand) in favor of the group that used guided discovery. This indicates that the proposed educational program using the method of guided discovery contributed to improving the performance level among the sample individuals in learning the skills of ground movements. This finding was confirmed by (Khalaf, 2013), (Derri and Pachta, 2007), (Morgam and Kingston, 2005), and (Al-Lami, Abdullah, Jiad, Akram, 2013), where all these studies confirmed that the method of guided discovery contributes to learning and acquiring sports skills.

The researcher attributed this finding to the role of the method of guided discovery in promoting the sense of initiative and self-dependence among learners, where this method helps students identify the best way of learning skills away from indoctrination by teachers. This, in turn, enhances the learners' motivation and desire to learn and develops their ability to innovate in order to find the appropriate solutions for the difficulties faced during the educational process. Therefore, the study agreed with (Bassam, 2005), which suggested that the learner in this stage is characterized by curiosity and discovery, and thus he should be given the opportunity to discover in a guided way. Accordingly, a teacher has to move from the process of acquiring knowledge to thinking which, in turn, enhances knowledge preservation and provokes self-motivation towards learning. In this stage, learners are characterized by their inclinations towards more activity, with the existence of physical, nervous and psychological readiness, where more attention should be paid to the programs of learner's preparation; therefore, the suitable instruments should be used for this age group due to their contribution in enhancing learners' motivation towards learning.

The results of the second hypothesis: There are statistically significant differences at ($\alpha \leq 0.05$) for using the training method in learning some ground

Table 1: Means, standard deviations and (t-test) for homogeneity between the two groups for the variables of age, height and weight.

Physical variables	Group	Mean	SD	t-value	Sig. level
Age	Guided discovery	19.65	0.25	0.20	0.840
	Training	19.63	0.27		
Height	Guided discovery	174.14	4.50	0.18	0.984
	Training	173.84	3.46		
Weight	Guided discovery	69.86	4.94	0.28	0.778
	Training	69.32	5.33		

Tabulated t-value =2.16 at ($\alpha \leq 0.05$)
N= 38 students, with (19) students in each group.

Table 2: Means, standard deviations and (t) calculated value for homogeneity between the two groups in the skills of ground movements in gymnastics in the pre measurement.

Physical variables	Group	Mean	SD	t-value	Sig. level
Age	Guided discovery	12.46	6.186	0.82	0.419
	Training	10.92	3.751		
Height	Guided discovery	15.66	7.658	0.27	0.783
	Training	16.46	6.254		
Weight	Guided discovery	6.12	4.78	1.78	0.090
	Training	5.66	4.38		

Tabulated t-value =2.16 at ($\alpha \leq 0.05$)
N= 38 students, with (19) students in each group.

movements skills in artistic gymnastics among the individuals of the second group (Table 4).

Table 4 revealed that there are statistically significant differences between the pre and post tests for the skills of (backward roll, forward roll, and handstand) in favor of the group that used guided discovery. This indicates that the proposed educational program using the method of training had a positive effect on learning the ground movement skills in gymnastics. This finding agrees with (Mandara, 2007) and (Al-Jabbar, 2006) which confirmed the effectiveness of this method on learning these skills, and with (Salama, 2005), which revealed that the training method is more appropriate for learning the skill of back stroke in table tennis. This finding also agrees with (Al-Dasouqi, 2009) which revealed the effectiveness of teaching by using the training method, where it gives positive results in improving the skilled performance among learners.

The researcher attributed this improvement to the positive effect of the training method that enables students to participate and take as many decisions as possible while teaching which, in turn, motivates them to make news. Also, this method enables students to use feedback and develops their abilities of self-criticism.

(Al-Sulieman, 2005) suggested that using the training method makes the educational process more effective and positive, where the learner becomes an effective participant and masters the targeted skills accurately. This method also gives the learners, with the help of teachers, the opportunity to select the most optimal exercises to learn the motor task by coming up with new ideas and making analysis and conclusion that enable the learners to acquire the skilled performance under various conditions which, in turn, enhance their experience and help them solve the problems facing them in the educational unit.

The results of the third hypothesis: There are statistically significant differences at ($\alpha \leq 0.05$) between the individuals of the first group that used the guided discovery method and the second group that used the training method in learning some ground movements skills in artistic gymnastics among the students of the faculty of sports sciences at Mu'tah University.

The results of the pre and post tests in the skills of ground movement in artistic gymnastics using the methods of guided discovery and training are illustrated in table 5 (Table 5).

Table 5 revealed that there are statistically significant differences between the impact of using the methods of guided discovery and training on learning the skills of (backward roll, forward roll, and handstand) in favor of the group that used guided discovery. The researcher attributed this finding to the students' interaction with this method that is applied to them for the first time, where it includes motivation, external motives, and the appropriateness of the information introduced by the teacher.

This finding is also attributed to the case that guided discovery enhances initiative and self-dependency among learners, where it helps students learn the targeted skills away from the method of indoctrination which, in turn, enhances the learner's motivation and his ability to learn, and thus develops his ability to innovate and find solutions to the problems facing him while learning. In this vein, (Al-Shibl, 2001) suggested that the method of guided discovery contributes to learning these skills. Also, guided discovery is viewed as a new educational method, where the learner is the center of the educational process which, in turn, increases the learner's motivation towards learning and provides a sufficient time to apply the acquired knowledge and correct mistakes, and this allows more opportunity for the skill training.

Indeed, teaching by using the method of guided discovery mainly targets the mental abilities and allows students to innovate and think about reaching solutions based on the teacher's guidance, since the learner in this stage needs more guidance, taking into consideration the necessity of not restricting his mental processes. This finding agrees with (Bassam, 2005) which revealed that learners in this stage are characterized by curiosity and discovery. Therefore, learners should be given the opportunity to explore based on guidance by teachers. Accordingly, teachers should move from the process of acquiring knowledge to thinking which, in turn, enhances knowledge-preservation and self-motivation towards learning. Learners in this stage are characterized by their inclinations towards activity alongside with the availability of nervous, psychological and physical readiness, where the process of learning is more effective and requires using the appropriate instruments for that age group. This finding agrees with (Abdullah, 1998), which revealed that self-dependency enhanced by the method of guided discovery motivates learners' motivation towards achieving the targeted objectives; indeed, recognizing the requirements of performance facilitated learners' understanding for the elements of motor skills. This finding agrees with (Jawad and Hussein, 2012).

Table 3: Means, standard deviations and (t) calculated value for homogeneity between the pre and post measurements for the skills of ground movements in gymnastics among the individuals of guided discovery group.

Physical variables	Measurement	Mean	SD	t-value	Sig. level
Backward roll	Pre	12.46	6.19	19.41	0.001
	Post	29.07	4.51		
Forward roll	Pre	15.66	7.66	4.06	0.001
	Post	25.07	6.36		
Handstand	Pre	6.12	4.79	4.49	0.001
		16.27	10.75		

Tabulated t-value = 2.16 at ($\alpha \leq 0.05$)

Table 4: Means, standard deviations and (t) calculated value for homogeneity between the pre and post measurements for the skills of ground movements in gymnastics among the individuals of the training method group.

Physical variables	Measurement	Mean	SD	t-value	Sig. level
Backward roll	Pre	10.92	3.75	7.45	0.001
	Post	16.20	4.09		
Forward roll	Pre	16.46	6.25	3.92	0.002
	Post	18.20	5.43		
Handstand	Pre	5.66	4.39	10.27	0.001
		9.53	4.96		

Tabulated t-value = 2.16 at ($\alpha \leq 0.05$)

Table 5: Means, standard deviations and (t) calculated value between the two groups in the skills of ground movements in gymnastics in the post measurement.

Physical variables	Measurement	Mean	SD	t-value	Sig. level
Backward roll	Pre	29.07	4.511	8.18	0.001
	Post	16.20	4.092		
Forward roll	Pre	25.07	6.364	3.18	0.004
	Post	18.20	5.427		
Handstand	Pre	16.27	10.754	2.20	0.036
		9.53	4.955		

Tabulated t-value = 2.16 at ($\alpha \leq 0.05$)

This result is also attributed to specification of the program that is based on guided discovery, in terms of determining the succession of steps in the form of questions or guided solutions that leads learners to discover the final conclusion, where each step is based on the response achieved in the previous step. This finding agrees with (Lotfi,1999) which revealed that the method of guided discovery enhances the scientific thinking, where the student's attempt to discover fine details for the required skills resulted in more understanding of the technical aspects of those skills. The researcher attributed the reason for the outperformance of the guided discovery group in the post test to the effectiveness of the guided discovery method which allowed students to freely perform the motor tasks delegated to them, in that the students were given the opportunity to experiment the motor solutions till they reached the best solution. Furthermore, the method of guided discovery encouraged repetition by performing these skills based on posing the questions and receiving responses about the targeted skill; students were given sufficient time to practice and repeat in order to ensure the mastery of the skill.

These findings agree with (Khalaf, 2013), (Derri and Pachta, 2007), (Morgam and Kingston, 2005) and (Al-Lami, Abdullah, Jiad, Akram, 2013), which revealed that the method of guided discovery highly contributes to learning and acquiring sports skills, and agree with (Al-Hayek and Al-Khataba, 2011) which revealed that using the method of guided discovery resulted in learners' satisfaction with their motor performance, since satisfaction reflects feelings of comfort and acceptance which, in turn, increases self-confidence and motivation among learners.

Conclusion and Recommendations

Conclusions: Based on the results and their discussion, the researcher concluded:

1. The methods of guided discovery and training have a positive effect on learning the artistic performance for ground movement skills in gymnastics.
2. Using the method of guided discovery outperformed the training method in learning the artistic performance for ground movement skills in gymnastics.
3. Teaching methods have a positive effect; however, there is no single method that is appropriate for all the skills and games, and thus there should be diversity in using those methods.

Recommendations: In the light of the results, the study recommended:

1. The necessity of making advantage of the method of guided discovery in learning the artistic performance of the skills of gymnastics due to its positive effects.
2. The necessity of conducting further studies on other skills and sports, such as basketball, volleyball, and swimming to identify the effectiveness of using guided discovery, as well as using more than one method, rather than depending on one teaching method.

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