JURNAL PENDIDIKAN KEPELATIHAN OLAHRAGA
PEJUANG
Jurnal Pendidikan Kepelatihan Olahraga: Pejuang
Volume 1 Nomor 2 30 Juni 2025
e-ISSN: 3090-1278

The effect of the (SQ3R) strategy employing the guided discovery method on acquiring passing and shooting skills in football among students

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Article History
Received: 06-06-2025;
Reviewed: 09-06-2025;
Accepted: 14-06-2025;
Published: 30-06-2025

ABSTRACT
Background and Study Aim. The study sought to examine the effect of the (SQ3R) strategy, implemented through the guided discovery technique, on students' acquisition of passing and shooting skills in football. Material and Methods. The researcher employed an experimental design featuring two equivalent groups with pre-test and post-test measures, chosen for its appropriateness to the research's nature. The researcher deliberately defined the research community as the fifth-grade literary students at Aleppo Boys' Preparatory School, comprising 105 students for the academic year 2023-2024, according to the fulfilment of research prerequisites. The researcher employed a basic random sampling approach through a lottery to choose the primary research sample, including 20 students, and subsequently divided it into two equal groups: one designated as the experimental group and the other as the control group. The researcher employed the statistical software (SPSS) to derive the research findings. Results. The study determined that the instructional units utilizing the (SQ3R) strategy in conjunction with the guided discovery technique positively influenced the acquisition of (passing - shooting) skills in football among the research sample. Conclusions. The study advocated for the implementation of the (SQ3R) technique alongside guided discovery to enhance the acquisition and mastery of football skills specifically, and sports skills broadly, for all genders.

Keywords: Strategy (SQ3R); Guided Discovery Approach; Football.

ABSTRAK
Latar Belakang dan Tujuan Penelitian. Penelitian ini bertujuan untuk mengkaji pengaruh strategi SQ3R, yang diterapkan melalui teknik penemuan terarah, terhadap penguasaan

keterampilan passing dan shooting pada siswa dalam sepak bola. Bahan dan Metode. Peneliti menggunakan desain eksperimental dengan dua kelompok setara yang dilengkapi dengan pengukuran pra-tes dan pasca-tes, dipilih karena kesesuaiannya dengan sifat penelitian. Peneliti secara sengaja mendefinisikan komunitas penelitian sebagai siswa kelas lima jurusan sastra di Sekolah Menengah Pertama Aleppo Boys, yang terdiri dari 105 siswa untuk tahun akademik 2023-2024, sesuai dengan pemenuhan prasyarat penelitian. Peneliti menggunakan pendekatan sampling acak dasar melalui undian untuk memilih sampel penelitian utama, yang terdiri dari 20 siswa, dan kemudian membaginya menjadi dua kelompok yang setara: satu kelompok sebagai kelompok eksperimen dan yang lain sebagai kelompok kontrol. Peneliti menggunakan perangkat lunak statistik (SPSS) untuk menganalisis hasil penelitian. Hasil. Studi ini menunjukkan bahwa unit pembelajaran yang menggunakan strategi (SQ3R) bersama dengan teknik penemuan terarah secara positif mempengaruhi penguasaan keterampilan (passing - shooting) dalam sepak bola di kalangan sampel penelitian. Kesimpulan. Studi ini merekomendasikan penerapan teknik (SQ3R) bersama dengan penemuan terarah untuk meningkatkan penguasaan dan penguasaan keterampilan sepak bola secara khusus, serta keterampilan olahraga secara umum, untuk semua jenis kelamin.

Kata Kunci: Strategi (SQ3R), Pendekatan Penemuan Terbimbing, Sepak Bola.

INTRODUCTION

The study sought to examine the effects of the (SQ3R) strategy, utilizing the guided discovery method, on the acquisition of passing and shooting skills in football among students. The researcher employed an experimental design featuring two equivalent groups with pre-test and post-test measures, chosen for its appropriateness to the research's nature (Huang et al., 2021). The researcher deliberately defined the research community as the fifth-grade literary students at Aleppo Boys' Preparatory School, comprising 105 students for the academic year 2023-2024, according to the fulfilment of research prerequisites.

The researcher employed a basic random sampling approach via lottery to choose a primary research sample of 20 students, then dividing it into two equal groups: one designated as the experimental group and the other as the control group. The researcher employed the statistical software (SPSS) to derive the research findings. The study determined that the instructional modules utilizing the (SQ3R) technique alongside the guided discovery method positively influenced the acquisition of passing and shooting skills in football among the research sample. The study advocated for the use of the (SQ3R) technique combined with guided discovery in the acquisition and mastery of various football skills specifically, and sports skills broadly, for all genders.

It is imperative to adapt to the significant advancements occurring globally by implementing necessary modifications in the educational and pedagogical processes, utilizing suitable contemporary strategies and methods that emphasize student engagement and position them at the core of the educational experience (Hall S Holt, 2023)(Vasileva S Chumakov, 2024)(Mödinger et al., 2022). This approach is essential to confront various challenges and embrace the realms of technology and artificial intelligence, which have become fundamental prerequisites in modern education.

It is imperative to adapt to the significant advancements occurring globally by implementing necessary modifications in the educational and pedagogical processes, utilizing suitable contemporary strategies and methodologies that emphasize student engagement and position them at the core of the educational experience.(Migliaccio et al., 2023) (Umamaheswari, 2024). This approach is essential for addressing numerous challenges and embracing the realms of technology and artificial intelligence, which have become fundamental prerequisites in modern education (Qutaiba Younus, 2021).

Contemporary techniques, such as the guided discovery approach, have emerged for application in various tasks or activities, owing to their beneficial outcomes for learners (Wang et al., 2024). This approach is based on the notion of self-directed learning, emphasizing the learner's active engagement in the educational context, while also consulting the instructor for guidance on the necessary performance criteria. This enables learners to enhance their knowledge through direct practical experiences. Alongside rectifying the errors, they identified independently, the teacher assisted them throughout this process (Antal et al., 2023).

Consequently, the researcher employed the (SQ3R) technique using the guided discovery method as an innovative approach designed to accommodate all sports talents, including fundamental football skills, while considering the individual variances among group members. Consequently, the learning methods based on the (SQ3R) approach employing the guided discovery technique will aim to master the skill and attain the specified objectives (Gueta S Janer, 2021)(Pino-Ortega et al., 2022).

Given that football is regarded as a competitive team sport, and the acquisition of its skills is contingent upon the learner's diligence, the instructor must select the suitable strategy and methodology that correspond with the nature of the skills and their learning and development processes (Skinner et al., 2024). The significance of the research in selecting the (SQ3R) strategy alongside a guided discovery approach for acquiring the skills of passing and shooting in football is apparent, as it can substantially assist students in achieving the teacher's desired proficiency level. The instructor is responsible for selecting the appropriate approach and methodology that corresponds with the nature of the abilities as well as their learning and development processes. This is because football is considered to be a competitive team sport, and the acquisition of its skills is dependent upon the learner's attentiveness. (Yang et al., 2022)

The importance of the research in selecting the (SQ3R) strategy in conjunction with a guided discovery approach for the purpose of gaining (passing-shooting) abilities in football is readily obvious, which is because it has the potential to significantly aid students in accomplishing the goals that the instructor has set for them. As a result, the possibility of implementing the (SQ3R) strategy through the use of the guided discovery technique may be the most effective solution for obtaining successful learning of the abilities (passing-shooting) in football (Haarnoja et al., 2024). One of the objectives of this research is to investigate the impact of the (SQ3R) strategy, which employs the guided discovery technique, on the development of skills related to football, specifically passing and shooting, for students. In the context of teaching students, the abilities of passing and shooting in football, identifying the differences between the pre-test and post-test for the (SQ3R) strategy utilizing the guided discovery technique is the second step (Banwan shareef, 2020).

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METHOD

The researcher employed the experimental method, which consisted of a design consisting of two equivalent groups—the experimental group and the control group—to suit the problem that was to be examined. This was done in order to accomplish the study objectives and validate the hypotheses that were being tested. The researcher made a conscious decision to select the research community, which consisted of the students in the fifth grade of literary studies at Aleppo Preparatory School for Boys in Wasit Governorate for the academic year (2023 - 2024). There were a total of 105 students, and they were divided into three sections (A, B, and C) to represent the original community.

In terms of the research sample, it was comprised of twenty students who were representative of two different divisions, with ten students from each division. These students were chosen at random from the group of study divisions for the fifth literary year, with fifty students being excluded from the sample. Refusals from nine students and absences from eight students, three students are among those who have medical reports, twenty-eight students were among those who participated in the exploratory, reliability, and objectivity assessments. Students that play volleyball two of them as a result, the actual sample size was twenty students, with ten students in each of the study groups.

The research sample was representative of 19.05% of the total population. In the following step, the instructional strategies were dispersed in a random fashion across the research groups that were chosen. In order to ensure that the research sample is comparable, the following principles were included in the selection process: In the variables of passing and shooting skills in football, it is shown in Table No (1) that the control group and the experimental research group are equivalent to one another.

Table 1. In terms of variables of passing and shooting skills in football, it clearly demonstrates that control group and experimental research group are equivalent to one another.

Type of indication	Level of significance	Calculated (value of (t	Experimental group St.d	Experimental group mean	Control group St.d	Control group mean	Unit of measurement	Variables	No
Insig.	0.721	0.371	0.825	3.302	1.372	3.102	degree	Passing	1
Insig.	0.698	0.399	2.005	9.303	3.460	8.803	degree	Shooting	2

Research methods used in the field

After reviewing the curriculum for the football course for fifth-year literature students, a collection of scientific sources related to football, and personal interviews with the subject teacher regarding the teaching method he follows for teaching physical education, an educational program for selected football skills (passing-shooting) was developed in accordance with the (SQ3R) strategy using the guided discovery method.(Shareef, 2025) This was done in order to develop the program. The program consisted of eight educational units for each group to master the skills of (passing-

shooting), with four educational units for each skill, and each unit lasted for forty-five minutes. Additionally, in order to prevent errors from occurring during the process of implementing the educational curriculum and presenting the chosen abilities (namely, passing-shooting) and testing for the game of football prior to the administration of the pre-tests. Two instructional units were provided to the study sample, and the assistance team led a workshop intended to help the participants become proficient in their job.

Participants in the experiment: Over the course of eight educational units, this group implemented the recommended educational curricular units by utilizing the (SQ3R) strategy in conjunction with a guided discovery approach. This was accomplished by going through the five phases that are contained in the (SQ3R) strategy and that utilized the guided discovery method. These stages are as follows:

1. The first stage (Browsing stage): This stage does not take a long time and aims to prepare students psychologically and mentally for the skill by purposefully reading the written text, including diagrams, charts, or illustrative images of the required skill, in order to form a general idea about the nature of the skill to be learnt theoretically and how to apply it practically according to the sequence from general to specific, in line with the principles of learning and encouraging students to the learner will advance on their own with minimum direct interaction from the teacher, and the responsibility of the teacher will be to motivate, stimulate, lead, and support the learner in order to make it possible for them to discover.
2. The second stage (Ask step): In this phase, the researcher's objective is for the student to formulate inquiries regarding the requisite skill, following the acquisition of a general understanding of it. These inquiries should act as a catalyst for reading and contemplation, adequately ensuring the acquisition of important experience. This encompasses their proficiency in utilizing cognitive capacities to uncover scientific concepts and principles concurrently, as well as retaining the expertise for practical application.
3. The third stage (Read stage): Following the psychological and mental preparation for purposeful reading and question formulation, the student commences focused and gradual reading of the written text, ensuring they obtain answers to all questions pertinent to the required skill, supplemented by feedback.
4. The fourth stage (Recitation stage): In this phase, the instructor demonstrates the requisite ability, and the student, by seeing the demonstration, attempts to recollect what they have read and respond to all enquiries posed during the second step. The act of reciting is a cognitive exercise that enhances long-term recall and establishes a solid basis for comprehending following skills, offering feedback. Subsequently, each student is prompted, following the observation of the model, to recognize the errors they committed in the questions provided to them or those they formulated themselves. To educate them to independently identify suitable answers when confronted with a particular challenge.
5. Phase five (Review Phase): In this phase, the researcher sought to create an optimal learning environment by organizing students into groups and ensuring all necessary resources were available. This preparation was aimed at facilitating the practical application of skills through a series of pre-designed exercises intended to stimulate and encourage positive thinking among learners, following the development of their cognitive understanding of the skill during the educational segment. The teacher's

function is confined to that of a guide and mentor, positioning the student at the core of the educational process via the (SQ3R) technique within a guided discovery framework.

Control group: The control group executed the designated curriculum for the football lesson, administered by the subject instructor, which encompassed eight educational units. The students were randomly assigned to small groups without consideration of the pre-tests, and the educational environment is managed by the teacher, requiring students to respond promptly to the subject teacher's judgements without discussion.

Research Variables and Tests

Following consultations with distinguished football specialists and an examination of scientific literature, the research variables were identified, encompassing specific talents, particularly passing and shooting in football. Due to their inclusion in the Ministry of Education's curriculum for this stage and their frequent repetition in play compared to others. It was also agreed to delineate the competence assessments for the talents in question.

The first test: Passing accuracy test: (Sumantri et al., 2023)

1. Test name: Passing to a small target located at a distance of ten meters.
2. The objective of the test: Assessing the precision of passing in football.
3. Utilized equipment: Football pitch, five footballs, three markers, a miniature goal measuring 120 cm in width and 68 cm in height, measuring tape, colored tape.
4. The participant positions himself 16 meters from the miniature goal and rolls the ball. He passes the ball at a distance of 10 meters from the goal line. The initial marker is positioned 1.5 meters from the ball, with a separation of 1.5 meters between each subsequent marker. The final marker is situated 1.5 meters from the starting line.
5. Method of Registration: Each tester is allotted three attempts, receiving two points for a successful attempt, one point for an attempt that contacts the bar, and zero points for an unsuccessful attempt. The maximum score is six points, while the minimum score is zero, as illustrated in Figure (1).

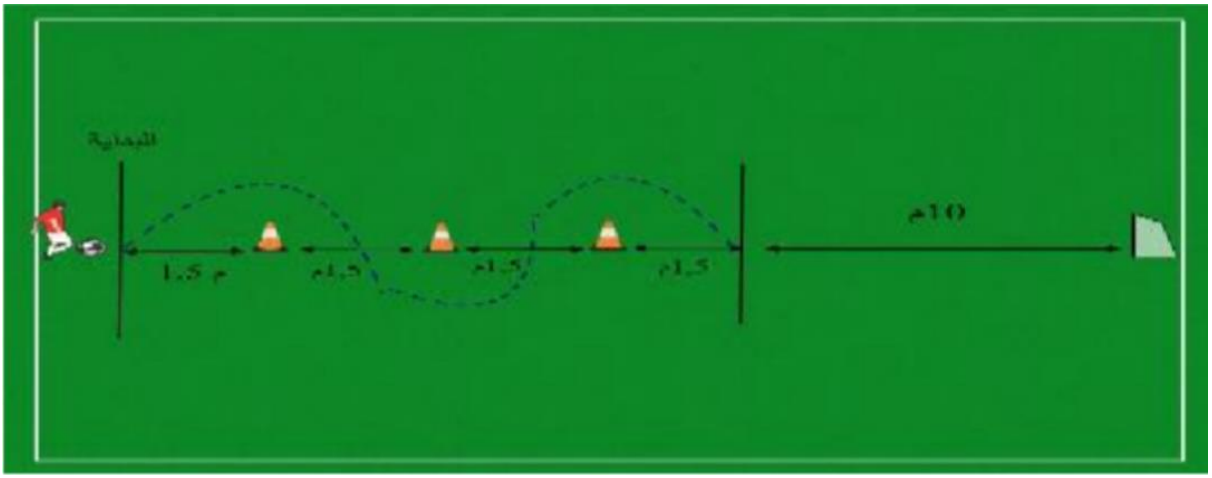

Figure 1. football passing skill assessment is elucidated

The second test: Precision in targeting evaluation: (Mohammed Jihad, 2023)

1. Test designation: Shooting at a bifurcated target.

2. The objective of the assessment: Evaluating the precision of football shooting abilities.
3. Instruments utilized: A soccer ball, tape for delineating the shooting zone for the assessment, and five soccer balls positioned at designated locations within the penalty area.
4. Performance Description: The player positions himself behind ball number (1) and, upon receiving the start signal, strikes the ball towards the goal utilizing the instep, inside, or outside of the front foot. He next repeats the shot with ball number (2) and continues in this manner until he completes shooting ball number (5), ensuring that the player allocates sufficient time for each shot, maintaining a gap of (1) meter between each ball.
5. Scoring methodology: The score is determined by aggregating the points earned by the player from shooting five balls, with each shot awarded points based on the designated area where the ball landed. The division lines are measured within the region with the greater score, and if the shot is executed from beyond the goal boundaries, the score is nullified. The cumulative score for the examination is 25 points, as illustrated in Figure (2).

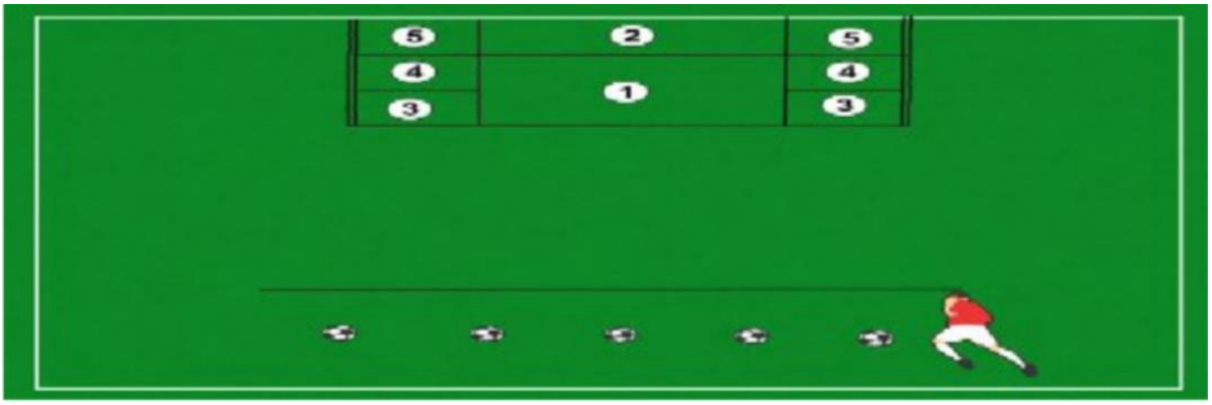

Figure 2. the assessment of shooting proficiency in football is elucidated

The statistical approaches employed have yielded the following results for the research variables

RESEARCH RESULT

Presentation of the results comparing the pre-test and post-test outcomes for passing and shooting skills in football within the control group. In the control group, a significant difference was observed between the pre-test and post-test results for both skills. The mean passing score increased from 1.37 (SD = 0.79) in the pre-test to 3.89 (SD = 0.12) in the post-test, with a calculated t-value of 5.99 and a significance level of p = 0.000, indicating a statistically significant improvement. Similarly, the mean shooting score improved from 3.46 (SD = 1.19) to 8.80 (SD = 0.19) in the post-test, also yielding a t-value of 5.99 and a significance level of p = 0.000, confirming a significant enhancement in shooting skills. These findings suggest that even without specific instructional interventions, regular practice alone can contribute to the development of fundamental football skills. The results can be seen in Table 2.

Table 2. the data presents the arithmetic means, standard deviations, and computed (t) values for the pre-test and post-test of passing and shooting skills in football within the control group.

No	Variables	Pre-test		Post-test		Distinction between the pre-test and the post-test	St.d the disparity between the two values	Calculated value of (t)	Level of significance	Type of significance
		Mean	St.d	Mean	St.d					
1	Passing	3.102	1.372	3.890	1.720	0.79	0.12	5.99	0.000	Sig.
2	Shooting	8.803	3.460	9.99	3.15	1.19	0.19	5.99	0.000	Sig.

In the experimental group, which received treatment using the SQ3R strategy combined with the guided discovery method, greater improvements were observed. The mean passing score increased from 0.82 (SD = 2.09) in the pre-test to 3.30 (SD = 0.22) in the post-test, with a calculated t-value of 8.99 and a significance level of p = 0.000, indicating a highly significant improvement. Similarly, the mean shooting score rose from 5.39 (SD = 0.51) in the pre-test to 12.39 (SD = 1.42) in the post-test, also yielding a t-value of 8.99 with p = 0.000, confirming a substantial enhancement in shooting performance. These findings demonstrate that the application of the SQ3R strategy through guided discovery has a positive and significant impact on the mastery of fundamental football techniques.

Table 3. data presents means, standard deviations, and computed (t) values for the pre-test and post-test regarding passing and shooting skills in football for the experimental group.

No	variables	Pre-test		Post-test		Distinction between the pre-test and the post-test	St.d the disparity between the two values	Calculated value of (t)	Level of significance	Type of significance
		Mean	St.d	Mean	St.d					
1	Passing	3.302	0.825	5.39	0.51	2.09	0.22	8.99	0.000	Sig.
2	Shooting	9.303	2.005	12.39	1.42	3.09	0.34	8.90	0.000	Sig.

Table 4. presents the arithmetic means, standard deviations, and computed (t) values from the post-tests for passing and shooting skills in football, comparing the control and experimental groups.

No	Variables	Controls				Calculated value of (t)	Level of significance	Type significance
		mean	St.d	mean	St.d			
1	Passing	3.890	1.720	5.39	0.51	2.62	0.017	Sig.
2	Shooting	9.99	3.15	12.39	1.42	2.18	0.042	Sig.

The comparison of post-test results between the control and experimental groups revealed significant differences in performance. For passing, the experimental group achieved a higher mean score (5.39, SD = 0.51) compared to the control group (3.89, SD = 1.72), with a calculated t-value of 2.62 and a significance level of p = 0.017. Similarly, in shooting, the experimental group obtained a higher mean score (12.39, SD = 1.42) than the control group (8.80, SD = 0.19), with a t-value of 2.18 and a significance level of p = 0.04. These results confirm that the experimental group, which was taught using the SQ3R strategy and guided discovery method, outperformed the control group in both passing and shooting skills.

Discussion

Examination of the pre-test and post-test results for the experimental and control groups in the football passing and shooting abilities assessment. The results displayed in tables (2) and (3), indicate substantial variations between the pre-test and post-test scores for passing and shooting skills in football, benefiting both the control and experimental groups in the post-tests. The researcher ascribes the disparities to their dependence on the educational curriculum employing the (SQ3R) strategy alongside a guided exploration approach and direct instruction method (Oliinyk et al., 2021). Each curriculum encompasses elucidations and demonstrations of the requisite skill, ongoing repetition of exercises to execute the necessary motor tasks throughout the educational units, and the provision of explicit instructions and guidelines for each element of the educational curriculum.

This corresponds with what was stated in that "Practice and effort through training and repeated exercises are crucial in the learning and acquisition process. Furthermore, training is a crucial element in the learner's or player's engagement with the skill, regulating their motions and ensuring synchronization among the actions that comprise the talent for optimal sequential execution and timing. This enhances the acquisition, progression, and proficiency of the talent" (Karasievych et al., 2021).

This strategy (the SQ3R strategy combined with the guided discovery method) demonstrated a significant enhancement in skill performance and effectively facilitated learning, with varying degrees of proficiency in the skills of passing and shooting in football (de Oliveira et al., 2024). Analysis of the post-test outcomes for the experimental and control groups in the football passing and shooting skills assessment. Upon examining Table (4), of the post-tests, which delineates the results of the disparities between the research groups (control and experimental), it is evident that the outcomes

favor the experimental group that employed the (SQ3R) strategy alongside guided discovery in acquiring the skills of passing and shooting in football.(Mohammad Ramdani et al., 2023) All calculated (t) values in table (4), exceed the tabulated (t) value, signifying that the differences in findings among the study groups are statistically significant, so showing that the implementation of the (SQ3R) method with guided discovery contributed to these disparities.

Consequently, the statistical analysis indicated that the differences favored the experimental group employing the (SQ3R) technique with guided discovery, as evidenced by the results in table (4).The researcher ascribes these changes to the (SQ3R) strategy employing a guided discovery approach, which structured the learning environment. The material had explicit diagrams and aesthetically crafted visuals, alongside presentations by the instructor or students, which facilitated and motivated the learner to engage in critical thinking, bolstered by external encouragement and reinforcement throughout the phases of this method.(Qutaiba Younus S Rashid, 2024) This really aided and motivated the student in comprehending the lecture and grasping the principles more efficiently.

Said underscores "the significance of learner engagement in educational contexts by designing scenarios akin to those in their actual environment" (Ben Said et al., 2024). The experimental group employing the (SQ3R) strategy with a learner-centered discovery approach received focused attention, fostering active participation and encouraging inquiry and response to facilitate cognitive development essential for skill acquisition. Additionally, learners were informed of their performance outcomes, whether accurate or erroneous, through feedback, which significantly enhanced the educational results of the post- test.(Mohammed Jihad, 2024) Feedback offers individuals constant information regarding their performance improvement, enabling them to modify their performance as necessary or to encourage it if it is on the right track (Yu, 2021).

The implementation of the (SQ3R) strategy, coupled with a guided discovery approach, enhances the learning process by distinctly refining, filtering, and experimenting with new experiences through its stages, facilitating a more active learning environment that integrates newly acquired knowledge with prior understanding (Mödinger et al., 2022). The learner synthesizes new information with existing knowledge through personal experiences, so enhancing and evolving earlier conceptions in novel ways and applying ideas in various forms (Hribernik et al., 2022).

The researcher attributes these differences to the (SQ3R) strategy, which employs a guided discovery approach that significantly encourages and trains students to think critically, conduct research, and gather information (Petancevski et al., 2022). This process facilitates the reorganization of stored information, enabling the formation of previously unknown relationships and allowing for informed decision-making essential for mastering the skill at hand. "Guided discovery is a method in which learning occurs as a result of the student's processing, organizing, and transforming of information until they attain new knowledge" (Anthony, 2021).

CONCLUSION

Based on the research findings, the researcher concluded that to cultivate favorable attitudes among physical education instructors towards the implementation of the (SQ3R) strategy alongside the guided discovery method, given the beneficial

outcomes demonstrated in the present study. The imperative of employing the (SQ3R) strategy alongside a guided exploration approach in physical education sessions for various educational levels to accommodate individual differences among students and afford them the opportunity to demonstrate their capabilities. Employing the (SQ3R) method alongside a guided discovery approach to allocate time and effort effectively. Based on the research findings, the researcher recommends to cultivate favorable dispositions among physical education instructors about the implementation of the (SQ3R) strategy alongside the guided discovery method, given the beneficial outcomes demonstrated in the present study. The imperative of employing the (SQ3R) strategy alongside a guided exploration approach in physical education classes for various educational levels to accommodate individual variances among students and enable them to showcase their strengths. Employing the (SQ3R) methodology alongside a guided discovery approach to allocate time and effort effectively. Future research may explore the long-term effects of SQ3R-based training across different age groups and competitive levels, as well as its applicability to other football skills such as dribbling, defending, and tactical decision-making. Additionally, studies with larger sample sizes and diverse contexts are recommended to strengthen the generalizability of these findings.

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