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The Extent to Which Physical Education And Sports Teachers Design and Deliver Lessons According to the Problem-Solving Method

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Abstract:
This study examines the extent to which physical education and sports teachers design and implement their lessons using the problem-solving method, a modern pedagogical approach that promotes creative thinking, initiative, and active learning. A descriptive-analytical method was adopted, and data were collected through a questionnaire administered to physical education teachers. The instrument assessed three main dimensions: planning, implementation, and evaluation of learning situations based on the problem-solving method. The findings revealed that although many teachers have a general theoretical understanding of this approach, its practical application remains limited due to insufficient specialized training, overcrowded classes, and limited instructional time. The results also showed a positive attitude toward adopting the method when appropriate pedagogical and material conditions are available. The study concludes that strengthening continuous professional development and improving the educational environment are essential to facilitate the effective integration of the problem-solving method into daily teaching practices and to support the objectives of competency-based physical education.

Keywords : Physical Education and Sports Teachers, Lesson Design and Production, Problem-Solving Method.

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1. INTRODUCTION

Physical education and sports are among the most important components of the educational process that contribute to the child's upbringing and integrated development at all educational stages and in sports activities. The child is born equipped with several instincts and tendencies (intelligence, acumen, attention) that are passed down through heredity and drive him to behave in a certain way to achieve a special purpose. Physical education and sports is one of the academic forms like chemistry, natural sciences, and language, but it differs from these subjects in that it also provides a lot of knowledge and information that covers the cognitive aspects of the formation of the human body, using physical and sports activities such as various exercises and games (individual and group), which differ in terms of the educational supervision of the teachers who were prepared for this purpose (Al-Khouli, Amin Anwar1996)**.**

Physical education and sports, like other subjects prescribed in the curriculum, work to form the individual's personality in all aspects, including motor, psychological, mental and social, relying on the motor activity that characterizes it, which takes its scope from physical and sports activities as a cultural and social support (Ministry of National Education 2006).

Teaching strategies and methods have been classified as the primary actors in the teaching process, as the outcomes of using these strategies help in the mental, emotional, social and physical development of the individual as a good citizen in a changing society (Qura, Hussein Suleiman (2013)). These modern strategies also work to build a different personality for the learner, making him a researcher, thinker and critic who expands his horizons on his own. Good teaching is teaching that takes into account all human, psychological, social and educational factors, to make it a successful educational process.

The problem-solving strategy has received widespread attention in modern educational literature, with many studies confirming its effectiveness in improving learning outcomes, especially in the fields of physical education and sports.

A recent study examining the use of problem-based learning in physical education revealed that this approach contributes to the development of learners' cognitive and creative abilities, helps them apply their knowledge in different situations, and enhances their critical thinking (Bio Conferences, 2024). The study also indicated that this learning style is not limited to acquiring knowledge, but also focuses on how knowledge is constructed and acquired.

In the same vein, a recent analytical study showed that adopting a problem-solving strategy in physical education contributes to enhancing students' thinking skills, teamwork, and emotional regulation, making it one of the teaching models most compatible with the requirements of modern learning.**Undiksha Journal of Language and Learning Studies. (2024).**

On the other hand, a recent literature review showed that integrating problem-based learning with modern technologies (such as augmented reality) makes physical education learning more creative and innovative, and increases learners' motivation to actively participate in educational activities. Atlantis Press. (2023).

On a broader level, a recent meta-analysis confirmed that active learning strategies, especially problem-based learning, have a clear positive impact on learners' motivation and attitudes towards learning compared to traditional methods (Springer, 2024), which reflects their importance in improving the quality of the educational process.

Recent systematic reviews have also shown that this type of learning contributes to the development of higher-order thinking skills (such as analysis, synthesis, and problem-solving), which are among the requirements of 21st-century education. Docens Journal. (2024).

In this context, modern teaching strategies have emerged that seek to achieve this objective, and the problem-solving strategy is one of them, because it is compatible with this trend. It gives the learner a greater opportunity to rely on themselves and search for solutions and alternatives. It is considered one of the indirect teaching strategies, because it provides self-learning and takes into account the individual differences between learners. It also opens up horizons for experimentation, discovery, inquiry, and searching for solutions to problems and making decisions. It also contributes to developing mental processes to bring learners to creativity and innovation (Al-Hayek, Sadiq, and Khasawneh, Ghada. (2013)).

A recent Arab study indicated that the use of modern teaching strategies in physical education, including problem-solving, contributes to improving cognitive understanding and developing students' thinking skills. It also helps make students more active and engaged in the learning process.

Similarly, an analytical study in the field of curricula and teaching methods confirmed that problem-solving and guided discovery are among the most effective methods for developing various types of thinking within physical

education and sports lessons, compared to traditional rote learning methods. The results showed a clear superiority of active learning methods.

Furthermore, an Algerian field study revealed that physical education teaching in many cases still relies on traditional, American-style methods, leading to weak student interaction and limited cognitive development. This underscores the need to adopt modern strategies such as problem-solving.

On the other hand, a recent study (2024) on physical education programs in primary schools showed that this subject plays a pivotal role in achieving the learner's holistic development (physical, psychological, and social). This necessitates the adoption of modern teaching strategies aligned with this goal, most notably active learning based on thinking and problem-solving

Furthermore, a Palestinian study (2023) concluded that employing thinking-based teaching strategies, such as generative learning linked to problem-solving, significantly develops students' problem-solving skills and enhances their ability to effectively handle various educational situations.

This study aims to investigate the extent to which physical education teachers design and deliver lessons using problem-solving as a modern teaching strategy, and to identify the most important learning outcomes. Therefore, we pose the following questions:

2. General question:

To what extent do physical education and sports teachers design and deliver lessons according to a problem-solving approach?.

3. Sub-questions:

• Is there sufficient planning at the level of constructing a problem-solving learning situation?

• Is there sufficient implementation at the level of constructing a problem-solving learning situation?

• Is there sufficient evaluation at the level of constructing a problem-solving learning situation?

- Research hypothesis:

Physical education and sports teachers suffer from a lack of competencies in designing and delivering lessons according to the problem-solving method.

4. Partial hypotheses:

• There is insufficient planning skills in constructing the learning situation using the problem-solving method.

• There is insufficient implementation skills in constructing the learning situation using the problem-solving method.
• There is insufficient evaluation skills in constructing the learning situation using the problem-solving method.

5.Previous studies :

5.1.The first study : Student Tahawy Al-Tahir (2019-2020) conducted a doctoral dissertation entitled: "The Effect of Using the Problem-Solving Approach on the Achievement Motivation of Secondary School Students During Physical Education and Sports Classes." The researcher adopted the experimental method, using tests and scales to collect data. The study achieved its primary objective, which was to verify the effectiveness of teaching physical education and sports using the problem-solving strategy. The results also highlighted the positive effect of this approach on the cognitive and intellectual domains, confirming that indirect teaching methods are among the most important means of developing students' thinking skills. Furthermore, the study demonstrated the effectiveness of the problem-solving approach in improving teaching performance and developing achievement motivation.

5.2.The second study : conducted by Nassima Mahboubi (2013), was titled: "The Relationship Between Problem-Solving Strategies and the Development of Creative Thinking During Physical Education and Sports Classes for Third-Year Secondary School Students (Males)." The researcher employed a purposive sampling method, using tests and scales as data collection tools. The results showed statistically significant differences in post-test scores favoring the group that studied using the problem-solving strategy, particularly in developing creative motor skills such as fluency, flexibility, and originality. The study recommended adopting this approach due to its role in developing creative thinking mechanisms among students.

5.3.The third study : Madqan Mustafa and Bakka Faris (2017-2018) conducted a study entitled: "Using the Problem-Solving Approach in Acquiring Teaching Competencies among Physical Education and Sports Teachers." The researchers adopted the descriptive-analytical approach and used a questionnaire as the primary data collection tool, with a sample of 12 teachers. The results showed statistically significant differences between the experimental and control groups in acquiring and developing the competency of planning physical education and

sports lessons, indicating the effectiveness of the problem-solving approach in improving the teachers' professional competencies.

5.4.The fourth study : Ben Saidi Abdel Sattar (2013-2014) conducted a study at the University of Algiers (3) entitled: "The extent of the impact of the problem-solving method on the speed of motor learning among learners under the competency-based approach curriculum." The study concluded that using the problem-solving method helps learners adapt to new situations, enhances their ability to utilize their prior knowledge in finding appropriate solutions, and develops their self-confidence in decision-making, especially in challenging educational situations.

5.5.The fifth study : Bakri Abdel Karim and Bouajila Omar (2021) conducted a study entitled: "The role of the problem-solving method in achieving the objectives of the physical education and sports subject from the teachers' point of view." The study relied on the descriptive method using a questionnaire on a sample of middle and high school teachers, and concluded that the problem-solving method has an effective role in achieving the three objectives of the subject (cognitive, motor, affective), which confirms its importance as a modern teaching strategy.

5.6.The sixth study : Al-Waisi (2022) conducted a study entitled: "The effect of using the problem-solving strategy on attention focus and skill performance in shot put." The study relied on the experimental method, and the results showed the superiority of the experimental group in both attention focus and skill performance, which indicates the effectiveness of this strategy in developing motor and mental performance.

6.Methodological procedures for research:

6.1.Methodology: In order to analyze and study the problem presented, and in response to the nature of the subject we are studying from an applied perspective, we adopted the descriptive method. This method is defined as an investigation focused on an educational or psychological phenomenon as it currently exists, with the aim of diagnosing it, revealing its aspects, and identifying the relationships between its elements or between it and other educational, psychological, or social phenomena (Zoughi, Abdeljalil, and Ghannam, Mohamed (1974)).

The descriptive method is considered one of the most objective methods because respondents have complete freedom to answer and express their opinions.

Furthermore, the subject of our study requires this type of method, which is what led us to choose it.

6.2.Research Sample: The research sample is the part from which field data is collected. It is a specific portion or percentage of the original population (Dawati, Rachid. (2001)).

Our research sample consists of 41 physical education and sports teachers distributed across the province of Boumerdès. A sample is defined as a part of the population under study, selected in a specific way to accurately represent the population in order to identify its characteristics (Sabri, Azzam. (2006)).

6.3.How to select the sample:

We selected a purposive sample using the survey method, as this type of selection method does not rely on the principle of randomness. This is confirmed by Ali Salloum Jawad and Mazen Hassan Jassim, who say that it is "a non-random method, as the researcher in this case may choose statistical parameters that represent the population, and this gives results that are very close to the results that the researcher can reach by surveying the entire population" (Jawad, Ali Salloum, and Jassim, Mazen Hassan. (2014).

We visited some middle schools in Boumerdès province to meet with physical education an

6.4.Study tools:

We used a questionnaire as the optimal method because it facilitated the collection of information needed to verify the previous hypotheses and thus answer the research question. This questionnaire was designed for physical education and sports teachers at the middle school level.

The questionnaire included 23 questions distributed across three sections, each section related to one of the study's hypotheses (Appendix 2). The titles of the questions were as follows:

First axis: Measuring the adequacy of planning in constructing learning situations using the problem-solving method**.**

Second axis: Measuring the adequacy of implementation in constructing learning situations using the problem-solving method**.**

Third axis: Measuring the adequacy of assessment in constructing learning situations using the problem-solving method**.**

7.Statistical Analysis: We used the following statistical methods

-Percentage: (Number of responses in 100) / (Number of individuals in the sample(

-Calculated Ct^2: Sum of (t - tm) / Sum of tm
tm: Observed frequencies
tm: Expected frequencies
Standard Error: $\alpha = 0.05$
We used means, standard deviations, the independent samples t-test, and relative weights, employing SPSS software (version 20).(

8.Discussion of the study results:

8.1.Presentation and discussion of the results of the first hypothesis planning:

8.1.1Presenting the study results in light of the first hypothesis:

The first axis: Measuring the adequacy of planning in building a learning situation using the problem-solving method**.**

Question 1: Do you consider the problem-solving method to be more appropriate for procedural objectives of a certain nature?

Table No. 01: Shows the statistical analysis of the answers to the first question of the first axis.

Table No. 01:

	repetitions	Percentages (%)	value of ka2		Error rate	Degree of Freedom	Significance of the Ka2 test
			Calculated	The schedule			
Physical	32	78	36.93	5.99			
Technical	04	10			0.05	02	sig
Tactical	05	12					
Total	41	100					

8.1.2.Discussion of the first hypothesis (planning):

The first hypothesis states that: "There is not enough planning skills in constructing the educational situation according to the problem-solving method."

The results in Tables (4) and (5) show that the problem-solving method is not applied prec suitable for objectives of a mechanical, physical nature (such as running or jumping), which require repetition and modeling, while it is more effective for

objectives of a strategic and technical nature that require analysis and decision-making**.**

This finding aligns with Mahboubi's (2013) conclusion, which affirmed that problem-solving strategies primarily contribute to developing creative thinking (fluency, flexibility, and originality) more than developing mechanical motor skills. This is further supported by the results of Al-Tahweel (2020), which highlighted the impact of this method on developing learners' cognitive and intellectual abilities.

Table 7 also reveals a misconception among teachers, who considered physical exercises the most suitable for this method. However, recent literature indicates that maximum effectiveness is achieved in quasi-sports games that integrate tactical and technical aspects. This was confirmed by Bakri and Bouajila's (2021) study, which demonstrated that problem-solving achieves cognitive and affective objectives more effectively in interactive contexts.

On the other hand, the results in Table (8) reveal that most teachers do not consider students' prior knowledge, which contradicts the principles of the competency-based approach. Ben Saidi (2014) emphasizes that starting from the student's existing experiences is a fundamental condition for successful learning and problem-solving.

Therefore, the results of this study align with those of Madqan and Bakka (2018), as well as the study by Zaghbi Jalloul, which confirmed a weakness in planning competencies among physical education and sports teachers.

This was confirmed, as there is a clear deficiency in planning competencies according to the problem-solving method.

8.2.Presentation and discussion of the results of the second hypothesis (implementation):

8.2.1. Presenting the study results in light of the second hypothesis:

The second axis: Measuring the adequacy of implementation in building a learning situation using the problem-solving method

Question 1: What type of feedback does the problem-solving method require?

Table No. 02: Shows the statistical analysis of the answers to the first question of the second axis

Table No. 02:

	repetitions	Percentages (%)	value of ka2		Error rate	Degree of Freedom	Significance of the Ka2 test
			Calculated	The schedule			
Self-generated	10	24	7.66	5.99			
External (source: teacher)	22	54			0.05	02	sig
External (via peers)	09	22					
Total	41	100					

8.2.2. Discussion of the second hypothesis (implementation):

The second hypothesis states that: "There is no sufficiency in implementation skills in building the educational situation according to the problem-solving method".

The results in Table (01) show that the teacher remains the primary source of feedback, reflecting the persistence of the traditional teaching model, even though this approach assumes the learner's active participation in knowledge construction. In contrast, peer feedback was weak, indicating the limited application of collaborative learning.

This finding aligns with recent literature emphasizing that problem-based learning relies on group interaction, a point highlighted by Al-Awaisi (2022) who underscored the role of this strategy in enhancing skill performance and attention through active learning.

Table (02) also reveals that the adopted organizational structure often fails to serve the nature of this approach, while workshop-based learning is considered more suitable due to the opportunities it provides for interaction and collective thinking.

Regarding the teacher's role in Table 17, it appears to still lean towards a direct, guiding role, whereas problem-solving pedagogy emphasizes that the teacher's role should be one of guidance and facilitation, not knowledge transmission, as confirmed by Al-Tahweel's study (2020).

Table 19 further demonstrates the reliance on the command-based approach to motivation, rather than peer-to-peer learning, despite the latter being one of the most compatible methods with active learning.

8.3.Presentation and discussion of the results of the third hypothesis (evaluation):

8.3.1.Presenting the study results in light of the third hypothesis:

Third axis: Measuring the adequacy of assessment in building a learning situation using the problem-solving method**.**

Question 1: Which assessment methods do you consider appropriate for the learner during the assessment phase**?**

Table No. 03: Shows the statistical analysis of the answers to the first question of the third axis :

Table No. 03:

	repetitions	Percentages (%)	value of ka2		Error rate	Degree of Freedom	Significance of the Ka2 test
			Calculated	The schedule			
Open-ended assessment methods	11	27	8.80	3.84			
Classical assessment methods	30	73			0.05	01	sig
Total	41	100					

8.3.2.Discussion of the third hypothesis (evaluation):

The third hypothesis states: "There is a lack of sufficient assessment skills in constructing a learning situation using the problem-solving approach."

The results in Table (03) show that assessment still relies on classical, teacher-dominated methods, whereas assessment within a problem-solving framework should be participatory and open, allowing for the measurement of thinking and analysis, not just motor performance.

The results in Table (01) also indicate that the focus is solely on the motor aspect, neglecting cognitive aspects, which contradicts the competency-based approach that aims for holistic competence.

Recent studies, such as those by Bakri and Bouajila (2021), confirm that effective assessment in physical education must integrate cognitive, motor, and affective aspects.

Regarding error (which is shown in Table 02), it has been shown that teachers do not consider it a tool for learning, while problem-solving pedagogy confirms that it is an essential element in building knowledge, which is consistent with the results of Belkacem and Naim (2019) on the role of this strategy in developing thinking.

10.Conclusions and suggestions:

10.1. Conclusions:

In light of the results of the field study and statistical analysis, a number of key conclusions can be drawn:

•The study revealed a clear deficiency in planning skills among physical education and sports teachers, particularly regarding the construction of learning situations aligned with problem-solving logic. Traditional approaches to formulating objectives and selecting activities are prevalent.

•The study showed that the application of problem-solving methods is not based on sound pedagogical principles. It is applied to various types of objectives, even though its effectiveness is primarily linked to situations requiring thinking, analysis, and decision-making.

•The results revealed weaknesses in implementation skills, manifested in the continued dominance of the teacher as the sole source of knowledge and feedback, coupled with limited student involvement in constructing learning and weak implementation of cooperative learning.

•The study demonstrated that the pedagogical organization within the lesson does not reflect the requirements of the problem-solving approach. Group work methods (such as workshops) are not utilized in a way that promotes interaction and collective thinking. • The results revealed shortcomings in assessment practices, with the focus remaining solely on motor performance while neglecting cognitive aspects and critical thinking. Furthermore, there was a weak reliance on form**ative** and participatory assessment.

•It also became clear that mistakes are not utilized as learning tools but are viewed as negative elements, which contradicts the principles of problem-based learning.

•These results, taken together, reflect a gap between theoretical concepts and the practical application of problem-solving approaches, indicating the limited pedagogical training of teachers in this area**.**

9.2.Suggestions and recommandations:

Based on the findings, a set of practical recommendations can be made:

• Enhance the pedagogical training of physical education and sports teachers by organizing practical training courses on how to design problem-based learning situations.

• Revise initial training programs by integrating specialized modules on modern teaching strategies, particularly problem-based learning.

• Develop planning skills by training teachers to formulate operational objectives that align with the nature of this approach and link them to the targeted competencies.

• Encourage the adoption of cooperative learning (such as group work, workshops, and peer teaching) due to its role in developing critical thinking and fostering interaction.

•Diversify assessment methods by integrating formative, self-assessment, and peer assessment, and focusing on assessing overall competencies rather than solely motor performance.

•Change teachers' perceptions of error by viewing it as an opportunity for learning and knowledge building, rather than simply an indicator of failure.

•Provide practical pedagogical resources (lesson models, problem-based situations, teaching guides) to help teachers effectively implement this approach.

•Strengthening pedagogical support within educational institutions through the role of inspectors and educational supervisors in guiding and monitoring the implementation of modern methods.

•Encouraging field research in education, particularly applied studies that bridge theory and practice in the field of physical education and sports teaching.

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