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## Students Critical Thinking Skills in Physical Education Learning: A Systematic Literature Review

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ABSTRACT	ARTICLE INFO
<p>This study was conducted to analyze the level of students' critical thinking skills in the context of physical education learning, as well as to explore how these skills are cultivated through instructional design. The research utilized a Systematic Literature Review (SLR) method, employing the Publish or Perish application and sourcing articles from Google Scholar. The review process followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol to ensure a rigorous and transparent selection methodology. From an initial pool of 135 relevant articles, classification was performed based on relevance to the topic of critical thinking, yielding 31 articles across 8 thematic categories, of which 16 specifically addressed critical thinking in physical education. Following a detailed inclusion and exclusion process, 2 articles were identified as meeting all criteria for in-depth analysis. The findings suggest that students exhibit strong critical thinking abilities, particularly in cognitive organizing processes that emphasize problem-solving. Instructional approaches that integrate critical thinking into physical education empower students to analyze, evaluate, and make informed decisions about real-world situations. Moreover, teachers play a crucial role by designing learning experiences that involve authentic problem scenarios, thereby fostering students' analytical and evaluative capacities within the framework of physical education. These insights underscore the importance of embedding critical thinking within curriculum design to enhance student engagement and learning outcomes.</p>	<p><b>Article History:</b> <i>Submitted/Received 20 Aug 2023</i> <i>First Revised 05 Sep 2023</i> <i>Accepted 21 Sep 2023</i> <i>First Available online 28 Sep 2023</i> <i>Publication Date 01 Oct 2023</i></p> <hr/> <p><b>Keyword:</b> <i>critical thinking,</i> <i>physical education,</i> <i>student skills,</i> <i>literature review</i></p>
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## 1. INTRODUCTION

Learning is a process where students interact with teachers and learning materials within a learning environment. It is a means through which teachers facilitate the acquisition of knowledge and skills, understanding of abilities and values, as well as the formation of attitudes and beliefs in every student (Yestiani & Zahwa, 2020). Teachers, as educators, play a crucial role in determining students' success, thereby serving as a determinant for enhancing the quality of education in schools. The importance of the teacher's role in education is enshrined in the Republic of Indonesia Law Number 20 Year 2003 concerning the National Education System, Chapter 2 Article 3, which states: 'National education aims to develop the abilities and shape the character and civilization of a dignified nation in order to enlighten the life of the nation, with the goal of developing the potential of learners to become individuals who are faithful and devoted to the One Almighty God, noble in character, healthy, knowledgeable, skillful, creative, independent, and responsible democratic citizens.' The highest reference for human resource quality is the WHO (World Health Organization) health, which emphasizes physically, mentally, and socially healthy human resources, free not only from diseases, disabilities, or weaknesses. WHO health represents an ideal concept of health that serves as an aspiration, goal, or benchmark for developing the quality of human resources, striving for perfect and nearly unattainable health (Bangun, 2012). Physical education must acknowledge its unique role in enhancing academic standards, promoting healthy lifestyles, teaching risk management, and developing students' physical skills and self-confidence in movement. Fundamentally, physical education is a process conducted at all levels from elementary to high school, utilizing physical activities to improve physical health and fitness, as well as motor skills that contribute to the development of behavioral and intellectual abilities in daily life (Bangun, 2016). Therefore, physical education is an integral part of general education, influencing students' cognitive, affective, and psychomotor abilities through physical activities. Through these activities, children gain valuable life experiences including emotional intelligence, attention, coordination, and skills (Bandi, 2011).

Within physical education learning, students undoubtedly require critical thinking skills. Critical thinking is a skill that students can develop through direct experiences when facing a problem. Thus, if students can utilize skills such as applying, analyzing, synthesizing, evaluating, and generalizing, their critical thinking skills will flourish. Characteristics of individuals with critical thinking abilities include problem-solving with specific goals, analyzing and generalizing ideas based on existing facts, drawing conclusions, and systematically solving problems based on valid arguments (Rachmantika & Wardono, 2019). Critical thinking skills are crucial in learning as they enable students to learn through discovery (Redhana, 2013). Critical thinking differs from ordinary thinking as it involves intellectual processes and results in high-quality, clear, reflective, independent, and directed thinking (Zulhelmi et al., 2017).

Research on students' critical thinking skills in physical education learning is crucial for providing better understanding. Indirectly, in physical education learning, methods and strategies used in various games, learning processes through open discussions stimulate students' imagination, enabling them to make accurate and prompt decisions. By learning critical thinking, students will be better prepared to evaluate information and make informed decisions about their learning. Moreover, critical thinking can enhance intelligence and creativity by encouraging students to question and challenge their thoughts, thereby generating new knowledge and discoveries (Stolz & Pill, 2014).

Based on the aforementioned issues, the author is interested in using a systematic literature review method to study 'students' level of critical thinking skills in physical education learning.' With a better understanding of this topic, the effectiveness of physical

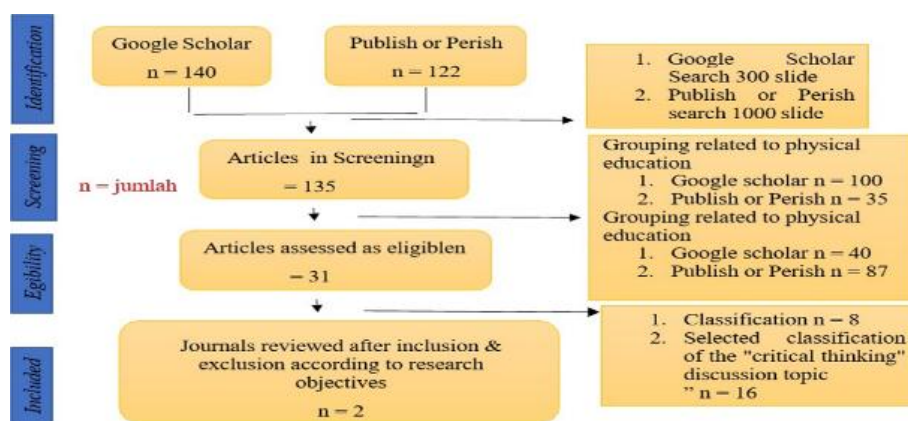
education can stimulate students' imagination and analytical abilities during physical activities. Game models require specific tasks that emphasize the importance of students' reasoning abilities when making decisions. Good critical thinking skills are essential skills that every student should possess. Critical thinking is crucial for facing current and future challenges. Critical thinkers can evaluate and analyze all new information they receive (Salimin et al., 2019).

## 2. METHODS

This study employs the Systematic Literature Review (SLR) method. SLR is a methodology involving the review of literature to address research questions posed by researchers. This method is conducted by researchers through the review of articles relevant to the research topic by identifying, examining, and evaluating available studies. SLR allows authors or researchers to identify key issues, develop a research framework, identify research gaps, and answer research questions.

The Research Questions (RQ) developed in this study are as follows: RQ1. What is the level of students' critical thinking skills in physical education learning, based on the review of journal articles on enhancing critical thinking? RQ2. What is the level of achievement/success of students' critical thinking in physical education learning, based on the review of journal articles on enhancing critical thinking?

This research protocol utilizes PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). The search process is divided into several steps: identification, screening, eligibility, and inclusion. PRISMA focuses on ensuring that reports of this research type are clear and comprehensive (Sastypratiwi & Nyoto, 2020). The PRISMA flowchart is depicted in Figure 1 below.



**Figur 1.** Prisma flowchart

During the identification stage, article selection was conducted using Google Scholar with predefined keywords: "(Critical Thinking, Physical Education)," "(Critical Thinking, Pendidikan Jasmani)," and "(Berpikir Kritis, Pendidikan Jasmani)." A search yielded 300 results, with 140 relevant articles identified. Subsequently, utilizing the Publish or Perish application with the keyword "(Critical Thinking, Physical Education)," a search generated 1,000 results, identifying 122 pertinent articles. In the screening stage, articles from Google Scholar were categorized into 100 related to physical education (penjas) and 40 unrelated

ones. Meanwhile, from Publish or Perish, 35 articles were selected based on the keywords, with 87 articles deemed irrelevant. Of the 135 articles meeting the keyword criteria, further classification was performed. In the eligibility stage, 8 classifications (31 articles) were chosen under the "critical thinking" category relevant to the topic, resulting in 16 articles. In the inclusion stage, after inclusion and exclusion criteria were applied, 2 relevant articles were obtained. The inclusion and exclusion criteria are detailed in Table 1.

**Tabel 1.** Inclusion and Exclusion

<b>Tipe</b>	<b>Inclusion</b>	<b>Exclusion</b>
Articles Type	Research Article	Research Report (thesis, dissertation, seminar)
Language	Indonesia and English	Other than Indonesian and English
Participant	elementary School & Secondary School	other than Elementary & Secondary School
Year of publication	-	-
Research variable	Physical Education Learning and Critical thinking	Other Than Physical Education and Learning and Critical thinking
The Scope	Physical Education	Other Than Physical Education
Index	Sinta	Non – Sinta

The relevant data were then selected based on quality assessment criteria as a reference to answer the questions. Quality assessment based on inclusion and exclusion is presented in Table 2.

**Tabel 2.** Quality Assessment

<b>ID</b>	<b>Quality assessment criteria</b>	<b>Qualified</b>	
		<b>Yes (Y)</b>	<b>No (N)</b>
QA1	Whether the article type comes from a scientific article		
QA2	Is the journal in the article Sinta accredited?		
QA3	Does the article write a scope that is relevant to the research entitled "the ability of students' critical thinking skills level towards physical education learning?"		

### 3. RESULTS

This The search for articles conducted through Google Scholar and Publish or Perish yielded 16 articles in the classification, which then entered the inclusion and exclusion phase resulting in 2 relevant articles. The classification of articles includes research titles, authors, publishers and publication years, Scopus index, as well as quality assessment criteria or Quality Assessment (Table 2). This classification is detailed in Table 3.

**Tabel 3.** Classification Result

No.	Research Title	Authors	Publisher and year of publication	Indeks		QA		
				Sinta	QA1	QA2	QA3	
1	Guidelines for Training Critical Thinking in Physical Education, Health and Recreation (PJOK) Subjects for Junior High School Students in Pontianak City	Iskandar, Hastiani (Iskandar & Hastiani, 2022)	Jurnal Pendidikan Olahraga – Tahun 2022	Sinta 3	Y	Y	Y	
2	Peer observation, self- assessment, and circuit learning: Improving critical thinking and physical fitness in physical educatio	Wahyu Indra Bayu, Nurhasan, Suroto, Soleh Solahuddin (Bayu et al., 2022)	Cakrawala Pendidikan (Jurnal Ilmiah Pendidikan) – Tahun 2022	Sinta 1	Y	Y	X	

#### 4. DISCUSSION

Based on the results of inclusion and exclusion and the quality assessment criteria scheme, out of 16 articles, 2 relevant articles were identified. These criteria address the scope involving students and their relevance to the research topics. This leads to the emergence of Research Questions (RQ) with two discussions concerning the enhancement of students' critical thinking skills.

RQ1. What is the level of students' critical thinking skills in physical education learning, based on the results of journal reviews regarding the enhancement of critical thinking?

From the two relevant articles obtained, the first article indicates that students' critical thinking skills often emerge from their decision-making during learning materials. This optimal interaction between teachers and students reflects teaching and learning actions, thereby creating an interactive learning atmosphere. The second article demonstrates that in physical education learning oriented towards peer observation during the learning process, student self-assessment, and packaged in a circuit learning method, it has proven to enhance students' critical thinking skills.

Therefore, based on these two relevant articles, the level of students' critical thinking skills in physical education learning significantly influences and demonstrates excellent critical thinking skills. Students focus on problem-solving in cognitive organization. They optimally employ critical thinking, fully engage in seeking effective learning, take responsibility for effective learning, and bring full thinking into their learning.

RQ2. What is the level of achievement/success of students' critical thinking skills in physical education learning based on the results of journal research on enhancing critical thinking?

Based on the results of the 2 relevant articles, the explanations are as follows:

- In the first article, to determine the guidelines for developing students' critical thinking skills in physical education learning, the R&D method was used with the Dick and Carey development model consisting of 10 stages: Identify Instructional Goals, Conduct Instructional Analysis, Identify Entry Behaviors, Write Performance Objectives, Develop Criterion Reference Test, Develop Instructional Strategy, Develop and Select Instructional Materials, Develop and Conduct Formative Evaluations, Revise Instructional, and Develop and Conduct Summative Evaluation. During the critical thinking training stage, a small-scale trial was conducted in 1 class and a large-scale trial in 2 classes, achieving observations from 32 individually conducted student evaluations. In the small-scale trial using the Game Performance Assessment Instrument (GPAI) guidelines, the average effective performance actions frequently occurred, indicating that students' critical thinking skills were quite good based on their decision-making in the learning material. Whereas, in the large-scale trial, changes were observed with the average effective performance actions consistently occurring, demonstrating optimal critical thinking skills among students supported by their engagement with the material. It can be concluded that the level of student skills can be seen through the guidance of critical thinking training in 4 stages: cognitive organization (focused on problem-solving), cognitive action (hypothesis on actions taken), cognitive outcomes, and psychomotor outcomes (performance demonstrated through cognitive actions).
- In the second article, the level of students' critical thinking skills was measured through task assignments, feedback loops, and peer observation implementation. Physical education teachers demonstrated necessary movements to students, followed by movement exercises. Teachers could demonstrate simple to complex movements, explained in clear and concise terms, allowing students to perform individually or in groups. Students were encouraged to find unique solutions to challenges, create new game types, and consider health and fitness-related issues. The movement tasks assigned to students included circuit exercises, aiming to minimize non-completion or waiting time. Feedback was provided based on monitoring results and student inquiries. General feedback aimed to correct overall student errors, while specific feedback aimed to correct information based on errors made by specific students or groups. Peer observation involved students observing each other's movements to achieve desired skills. The final task developed involved explaining, reflecting on student experiences, evaluating the learning process and outcomes through authentic assessment and self-assessment methods, reviewing, and following up.

From the review results, it is evident that students' critical thinking skills in physical education learning are developed through presenting a problem where students need to find ideas/solutions and innovate to create an optimal learning strategy. Therefore, learning supports students in feeling safe, comfortable, and respected by teachers. Critical thinking involves problem-solving based on decision-making regarding issues with careful consideration of consequences, such as the positive and negative impacts of decisions to be made (Mihardi et al., 2013).



## 5. CONCLUSION

Based on the research findings using the Systematic Literature Review (SLR) technique conducted, it can be concluded that teaching critical thinking skills empowers students to analyze, evaluate, and make informed decisions about the world around them. From the classroom to the discussion room, critical thinking is a valuable asset that can lead to success in academic and professional endeavors. To enhance critical thinking skills, educators can design learning strategies to provide experiential learning opportunities. Teachers devise learning experiences by presenting problems that engage students' thinking skills and involve analytical processes based on real-world issues. The physical education learning environment can be enriched through social interactions where students select learning materials, engage in challenging activities, and allocate learning time to optimize learning opportunities, creative thinking, problem-solving, and critical thinking

## 6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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