A Literature Review: The Impact of Experiential Learning on Developing Students' Critical Thinking Skills in Indonesia

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Article Info

Abstract

The use of the experiential learning model within learning often remains underutilized despite its proven effectiveness in enhancing students' abilities across various domains. There is a need for a review of existing studies applying this pedagogical approach. This research aims to disseminate the impact of research that has been carried out on the development of knowledge science. These findings affirm the effectiveness of experiential learning in cultivating critical aspects of students' thinking, aligning with the demands of modern education that emphasize deep and critical thinking skills. This model consistently contributes positively to students' abilities in analysis, evaluation of arguments, and making rational conclusions based on evidence. Students engaged in experiential learning show increased cognitive activity, more comprehensive participation, and high motivation to develop critical thinking skills. The stages of implementing this model, from concrete experience to active experimentation, blend real-world experiences with the development of students' critical thinking skills. This process involves direct experience, reflection, conceptualization, and implementation, reflecting a student-centred, experientially-based learning approach. This research provides a strong basis for considering the adoption of experiential learning to enhance the quality of learning and the development of critical thinking skills in future educational endeavours.

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Introduction

The discussion of critical thinking ability as the primary focus of classroom learning objectives is essential to holistic and progressive education. Critical thinking is identified as one of the high-level thinking skills required for developing 21st-century skills (Redhana, 2019; Kurniawati et al., 2019; Mardhiyah et al., 2021; Rahardhian, 2022; Pare & Sihotang, 2023). Developing critical thinking, problem-solving, communication and teamwork skills, as well as fostering creativity and invention, are essential components of learning and are crucial for the advancement of society in the 21st century (Kurniawati et al., 2019).

In this context, critical thinking ability is defined as students' capacity to deeply analyze information, evaluate arguments, and construct rational and logically reasoned thoughts (Ahmatika, 2017; Saputri et al., 2019; Firdaus et al., 2019). Learning objectives focusing on developing critical thinking skills acknowledge the importance of preparing students to think independently and critically about the myriad of information they encounter in daily life. An individual's critical thinking ability is crucial for life, work, and effective functioning in all other aspects of life (Fristadi & Bharata, 2015).

Critical thinking abilities are essential in classroom learning as they develop individuals who can excel and adapt in complex and constantly evolving cultures. Through critical thinking, students can develop problem-solving abilities. Problem-solving skills require children to possess critical thinking abilities to solve a problem or explore various problem-solving alternatives and decision-making, evaluate potential, problem-solve, and synthesize information to make decisions (Fristadi & Bharata, 2015; Novita et al., 2020). Emphasizing critical thinking skills in learning also enables students to develop deep analytical abilities towards social, scientific, and cultural issues they encounter, thus fostering intellectual growth and enhanced understanding.

Furthermore, critical thinking-oriented learning contributes to shaping individuals who are critical of various narratives and perspectives. By encouraging students to question, evaluate, and construct arguments critically, such learning creates an environment where tolerance for diversity of opinions is promoted and the ability to engage in evidence-based discussions is enhanced. Therefore, critical thinking-focused learning not only pursues academic achievement but also aims to shape active, critical, and competitive citizens in a complex global era. Achieving critical thinking skills as a learning outcome requires the application of appropriate and effective learning models. Learning models emphasizing the development of critical thinking skills typically involve active interaction between students and their learning materials and mentors. A model that provides room for students to develop their abilities is necessary (Novita et al., 2020).

In this context, the existence of learning models becomes a primary focus to support effective and efficient learning processes. Learning models are conceptual frameworks that guide the teaching and learning process, considering various aspects from teaching methods to interaction patterns between teachers and students (Mertayasa, 2023). Joyce & Well describe a learning model as a plan or pattern that can be used to design long-term learning plans, design learning materials in the learning process, and guide the learning process in class (Albina et al., 2022). The right learning model can play a crucial role in developing students' critical thinking

skills. By selecting a learning model that aligns with students' characteristics and learning objectives, teachers can create a motivating and challenging learning environment that enables students to achieve their maximum potential.

In practice, the presence of suitable learning models can optimize the learning process by increasing student engagement, enhancing conceptual understanding, and facilitating knowledge transfer to different situations. Teachers who understand various learning models have the flexibility to adapt their approaches according to students' needs and characteristics. Therefore, the presence of learning models can be considered a key element in achieving optimal learning outcomes in an educational context.

The discussion on the underutilization of the experiential learning model by teachers, despite its high effectiveness in improving student learning outcomes, reflects a paradox in the education world. Experiential learning was introduced in 1984 by David Kolb in his book titled "Experiential Learning: Experience as the Source of Learning and Development." Experiential learning is defined as "the process by which knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (Idris, 2018).

The experiential learning model not only provides insights into conceptual knowledge but also builds skills through real assignments, feedback, and evaluation between the application outcomes and what should be done (Zuhryzal & Fatimah, 2019). This model emphasizes that experience plays a central role in the learning process (Barida, 2018). In the experiential learning model, learning occurs naturally in the form of participants working and experiencing rather than the transfer of knowledge from educators to learners (Aryuni et al., 2017).
This method offers a real context for students to apply the knowledge they gain in real-life situations, which can deepen their understanding. The experiential learning model stimulates original thinking and develops various thinking strategies and perceptual skills not acquired from books or lectures (Efstratia, 2014). Involving students directly in the process of discovering and formulating concepts enables pupils to develop their ideas and thoughts (Novita et al., 2020).

However, the main challenge that may make teachers reluctant to adopt this model is the challenges in planning and implementation, which require considerable time and resources. One reason why the experiential learning model is underutilized is the lack of understanding and training among teachers on how to effectively implement it in the classroom context. This approach requires teachers who can integrate elements of active learning, reflection, and practical experience into their curriculum and teaching designs. Unfortunately, the lack of support and resources for teachers to develop these skills often becomes a major barrier to adopting the experiential learning model (Periyanti et al., 2019).

Furthermore, some teachers may be hesitant to use the experiential learning model due to concerns about reduced control and orderliness in the classroom. In this approach, students play a more active role in their learning process, which can change the traditional dynamics in the classroom. This can cause discomfort or concerns for some teachers who are more accustomed to structured approaches. Therefore, to increase the use of the experiential

learning model, it is important for educational institutions and curriculum developers to provide adequate training for teachers and facilitate an environment that supports experimentation and innovation in teaching methods. In the information age, critical thinking ability is a much-needed skill. Experiential learning helps students develop these abilities by exposing them to real-life situations that require analysis, evaluation, and problem solving. Investigating and implementing experiential learning can be one strategy to get around problems in conventional educational systems and raise educational standards all around.

Method

The employed approach is a systematic literature review (SLR), which is a methodical and organized research technique used to locate, assess, and amalgamate all pertinent information from preexisting literature pertaining to a particular subject (Rahayu & Hosizah, 2021). This method involves the following steps: (1). Develop research questions. Research questions are formulated based on the needs of the selected topic. The research questions for this study are: RQ1: What is the impact of the experiential learning model on students' critical thinking abilities? RQ2: How is the experiential learning model applied to enhance students' critical thinking abilities?; (2). Selection Criteria. The selection criteria for this research are as follows: a. Inclusion Criteria: 1). Relevant journal articles or scientific works related to the sought topic or research questions (impact of the experiential learning model on students' critical thinking abilities). 2). Publication year (2013 to 2023). 3). Indonesian national journal articles. 4). Accredited SINTA journal articles or scientific works. b. Exclusion Criteria: 1). Irrelevant journal articles, scientific works, or out of the search topic. 2). It was published more than 5 years ago. 3). Non-accredited journal articles or scientific works; (3). Developing the search strategy The search process is conducted using a search engine (Google Chrome) with the website addresses https://garuda.kemdikbud.go.id and https://scholar.google.com/ using the keywords "experiential learning critical thinking students"; (4). The methodology for selecting participants in the study Journal articles or scientific publications that have been identified are subject to the selection criteria for selection process. Sometimes referred to as screening to ensure the research meets the selection criteria or not. The selection process is conducted in two stages, where the title and abstract of the research are initially reviewed to determine relevance to the sought-after topic. (5). Appraising the quality of studies.
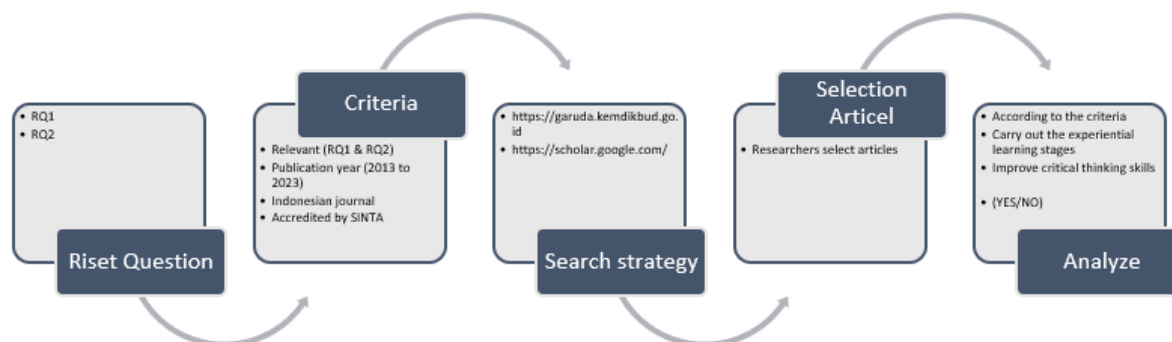

Figure 1. Methodological Steps

The found data will be evaluated based on quality assessment questions as follows: QA1: Was the journal paper published between 2013 to 2023? QA2: Is the journal article published in a SINTA-accredited journal? QA3: Does the journal paper describe the stages of applying the experiential learning model? QA4: Does the journal paper describe the improvement of students' critical thinking abilities? For each journal article or scientific work, answers will be provided below for each of the questions above: a. Y (yes) b. T (no).

Results

From the search results, 11 articles were obtained and will undergo selection. One article is a duplicate of an existing article, resulting in a total of 10 articles available for selection. Out of these 10 articles, four fall into the acceptance category.

For question QA1, all accepted journal articles were published between the years 2013 to 2023. Regarding question QA2, all accepted journals are indexed in SINTA 3. In response to question QA3, all journal articles describe the stages of implementing the experiential learning model. Finally, for question QA4, all journal articles discuss the improvement of students' critical thinking abilities. Further details are illustrated in the following table:

Table 1. Selected Articles

No.	Authors	Title	Publisher
1	Ayu Amalia, Eko Hariyono	Penerapan Experiential Learning pada Materi Perubahan Iklim untuk Melatihkan Keterampilan Berpikir Kritis Siswa	BRILIANT: Jurnal Riset dan Konseptual, Vol. 7 (1), 2022
2	Winda GarinaIis, Nurasiah,Dyah Lyesmaya	Penerapan Pendekatan Experiential Learning Dalam Pembelajaran IPA Untuk Meningkatkan Berpikir Kritis Pada Siswa Sekolah Dasar	Attadib Journal Of Elementary Education, Vol. 2 (1), 2018
3	Ni Wayan Rina Lestari, I Wayan Sadia, Ketut Suma	Pengaruh Model Experiential Learning Terhadap Keterampilan Berpikir Kritis Dan Motivasi Berprestasi Siswa	e-Journal Program Pascasarjana Universitas Pendidikan Ganesha Program Studi IPA, Vol. 4, 2014)
4	Reni Periyanti, Lia Yuliati, Ahmad Taufiq	Eksplorasi Kemampuan Berpikir Kritis Siswa melalui Strategi Experiential Learning pada Materi Fluida Statis	Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan, Vol. 4 (7), 2019

Source: Processed from https://garuda.kemdikbud.go.id/

Discussion

1. RQ1: What is the influence of experiential learning on students' critical thinking abilities?

From the analysis conducted, there were differences in critical thinking skills between two groups of students who underwent different learning methods: experiential learning and conventional learning. In this context, critical thinking skills were measured as students' ability to analyze information, evaluate arguments, and draw rational conclusions based on available evidence.

The data analysis results indicated a significant difference in critical thinking skills between the two groups of students. The experimental group, which learned through the experiential learning approach, demonstrated a greater improvement in critical thinking skills compared to the control group that underwent conventional learning. This was evident from the significant scores achieved by students in identifying assumptions, constructing sound arguments, and critically evaluating information (Lestari et al., 2014; Amalia & Hariyono, 2022). Experiential learning positively influences participants' activities in the learning context. Students engaged in experiential learning tend to be more cognitively active, participate more comprehensively in the learning process, and exhibit higher motivation to develop critical thinking skills.

The experiential learning approach can enhance students' critical thinking abilities. Based on the observed changes in students' thinking, it is evident that this strategy effectively stimulates reflection and deep evaluation of the learning material. The observed improvement in students' critical thinking skills can be attributed to the characteristics of experiential learning, which emphasize direct experience and reflection. By involving students in activities that require active analysis, synthesis, and evaluation, this learning model encourages the development of critical thinking skills (Garinalis et al., 2018; Periyanti et al., 2019).

This provides concrete evidence that the application of experiential learning influences how students process information and develop thinking skills. In the context of modern curricula that emphasize cognitive development, this experience-based learning strategy has the potential to provide significant benefits in preparing students to face intellectual challenges. Moreover, this research provides a strong scientific basis for recommending the integration of experiential learning into the curriculum. By providing students with direct experience in the learning process, educational institutions can effectively enhance their critical thinking abilities, preparing them to solve complex problems and adapt to future changes. The significant differences observed in critical thinking skills between students learning through experiential learning and conventional learning provide additional impetus for educators and policymakers to consider the use of more innovative, experience-based learning strategies.

2. RQ2: How does the implementation of experiential learning enhance students' critical thinking abilities?

a. Concrete Experience.

In the concrete experience phase, students are provided with real-life experiences or real-world problems related to the discussed material. Students actively engage in the learning process (Hakima & Hidayati, 2020). In this phase, the interpretation dimension of critical thinking skills is developed. Students are given stimuli or motivation

that can encourage them to engage in activities based on their experiences (Lestari et al., 2014; Garinalis et al., 2018; Periyanti et al., 2019; Amalia & Hariyono, 2022).

The concrete experience phase involves engaging students in the learning process, which plays a role in developing students' learning abilities during the learning process because the media used is not only books and teachers but also involves students' experiences (Arifah, 2023). Previous experiences are utilized by providing stimulation and direction so that students can think critically (Sundari et al., 2014). Experiences can serve as student learning sources, thus forming understanding (Hajjah et al., 2022).

Through the capacity of humans to reconstruct experiences and then interpret them (Ariani, 2018), learners can more easily construct knowledge independently (Mariyam et al., 2014). Students are invited to directly engage with real-life experiences or relevant real-world problems related to the learning material. The goal is to encourage students to develop the interpretation dimension of critical thinking. Additionally, it invites students to critically view everyday events and conduct simple research to determine what actually happened, followed by drawing conclusions together (Nurhasanah et al., 2017).

Real experiences and relevant real-world problems related to the learning material are key to achieving experiential learning goals. By using relevant experiences and problems, students can understand concepts and theories more deeply, be motivated to learn, develop critical thinking skills, improve knowledge transferability, and prepare for real-life situations. The best learning process occurs when facilitated by conflicts between direct experiences and students' real experiences (Ariani, 2018).

In the concrete experience stage, the teacher plays a role in providing appropriate stimuli and motivation to students. Stimuli can be in the form of questions, pictures, videos, or real objects related to the experiences or problems provided. Motivation can be provided by explaining the benefits of studying the material and how the material can be applied in real life. Educators are responsible for overseeing the organization of learning activities based on previous experiences and linking them to new experiences (Ariani, 2018). Students are encouraged to engage in activities related to the experiences or problems provided. These activities can include observation, experiments, discussions, problem-solving, or projects. These activities should be designed in a way that encourages students to think critically, analyze information, and draw conclusions.

The interpretation dimension of critical thinking is the ability to understand the meaning and implications of acquired information. Therefore, students are trained to interpret the experiences or problems they face. Students are encouraged to view various perspectives, analyze the involved factors, and draw logical and reasoned conclusions.

b. Reflective Observation
In the reflective observation phase, students are encouraged to observe phenomena presented earlier. Students are expected to describe and communicate their experiences so that the analytical dimension of critical thinking skills can be developed. In this phase, teachers play a role in inviting participants to explain their experiences. The

activities produced in this stage serve as a basic guide for students to understand a concept from their existing experiences in daily life (Lestari et al., 2014; Garinalis et al., 2018; Periyanti et al., 2019; Amalia & Hariyono, 2022).

Reflective observation aims to develop students' critical thinking skills. Reflection is a new action in knowledge development (Nugraha et al., 2020) and is an important vehicle to meet the breadth and depth of knowledge (Rahman, 2014). In the reflective stage, students are encouraged to observe phenomena they have experienced or learned about previously. Students observe the results of their experiences from various reflective or direct perspectives (Hakima & Hidayati, 2020).

Reflective learning can assist students in creating solutions to the issues they encounter. The absence of reflection exercises in the learning process can lead to misconceptions and make it more difficult for pupils to understand what they are learning (Dewi & Erman, 2021). At this point, students watch as exercises involving the five senses are experienced. In addition, students consider their experiences, and they derive lessons from the conclusions of this thinking. In this instance, the teacher's ability to inspire students to retell their experiences, recommunicate, and draw lessons from them will facilitate the reflection process (Hariri & Yayuk, 2018)

c. Abstract Conceptualization.
In the abstract conceptualization phase, students are expected to explain concepts related to observed phenomena and integrate new experiences with previous experiences to develop their evaluation and explanation abilities. In this phase, teachers assist students in optimizing the application of acquired knowledge with previous experiences (Lestari et al., 2014; Garinalis et al., 2018; Periyanti et al., 2019; Amalia & Hariyono, 2022).

Abstract conceptualization aims to develop students' critical thinking skills. In this phase, students are encouraged to move beyond observation and analysis of experiences and begin developing abstract and conceptual understandings of the phenomena they have learned. Students conceptualize by integrating or combining the results of their observations and previous reflections into a logical and easily understandable conceptual theory (Hakima & Hidayati, 2020).

Throughout the abstract conceptualization stage, students engage in a number of tasks, such as assessing the alternatives' utility, before selecting one through the process and using it to carry out the active experiment, which is the next activity (Sudarman et al., 2023). Every student examined the outcomes of their initial experiments again. Students who have not been successful in their initial experiments think about ways to increase their chances of success, such as examining possible reasons for their failures and conversing with peers who have completed initial experiments successfully, until they come across new ideas or concepts that they can comprehend. Pupils who completed the first experiment successfully share their methods with others in order to maximize their outcomes (Hakima & Hidayati, 2020). The abstract conceptualization phase is intended to encourage students to move beyond observation and analysis of experiences and begin developing abstract and conceptual understandings of the phenomena they have learned. Teachers play a role in facilitating these activities and helping students apply their acquired knowledge in new situations. The abstract conceptualization phase has

many benefits for students, such as improving abstract thinking, problem-solving, self-directed learning, and communication.

d. Active Experimentation

In the active experimentation phase, students implement the knowledge gained in different situations and draw conclusions to develop their inference skills. Therefore, the experiential learning model can accommodate the development of all indicators of students' critical thinking skills. Students plan or try an experiment related to one of the problems. Participants conduct observations and test the truth of theories drawn in the previous phase as the basis for decision-making in solving problems (Lestari et al., 2014; Garinalis et al., 2018; Periyanti et al., 2019; Amalia & Hariyono, 2022). Consequently, students will use the concepts they have to overcome problems in daily life.

The active experimentation phase aims to develop students' critical thinking skills. In this phase, students are encouraged to implement the knowledge they have gained in different situations and draw conclusions, thereby developing their inference skills. Students conduct experiments to test the theories they have previously generated to be used in making decisions in problem-solving (Hakima & Hidayati, 2020). When making judgments and solving problems, students employ ideas (Dewi & Erman, 2021).

The active experimentation phase is an important stage in developing students' critical thinking skills. In this phase, students are encouraged to implement the knowledge they have gained in different situations and draw conclusions, thereby developing their inference skills. Teachers play a crucial role in facilitating these activities and helping students apply their learning in different situations. The active experimentation phase has many benefits for students, such as improving critical thinking skills, problem-solving abilities, independent learning, and collaboration with others.

Conclusion

The analysis conducted on four articles revealed that the implementation of experiential learning models has a positive and significant impact on enhancing students' critical thinking abilities. Based on the data analysis from the selected articles, it can be concluded that the experiential learning model consistently contributes positively to the development of students' critical thinking skills compared to conventional learning methods. Participants engaged in experiential learning demonstrated significant improvement in their ability to analyze information, evaluate arguments, and formulate rational conclusions based on available evidence. These findings also indicate that students learning through experiential learning are more cognitively active, participate comprehensively in the learning process, and exhibit higher motivation to develop critical thinking skills. These results provide strong empirical support for the effectiveness of the experiential learning model in enhancing critical aspects of students' thinking, highlighting the importance of this approach in the context of modern education, which emphasizes the development of deep and critical thinking skills.

The stages of implementing the experiential learning model integrate students' real-life experiences with the development of critical thinking skills. The concrete experience stage allows students to actively engage in

learning through direct experiences, which form a crucial basis for developing critical thinking abilities. Subsequently, the reflective observation stage encourages students to conduct reflective observations of their experiences, facilitating the development of analytical dimensions in critical thinking. The abstract conceptualization stage prompts students to develop abstract and conceptual understanding by integrating new experiences with previous ones. Lastly, the active experimentation stage provides students with opportunities to implement knowledge in different contexts, effectively developing students' inference abilities and the application of critical thinking skills. These holistic stages build students' critical thinking skills through direct experience, reflection, conceptualization, and implementation, reflecting a student-centered, experiential-based learning approach.

Recommendations

Based on the literature review conducted in four research journals, it is recommended to use the experiential learning model in education ranging from elementary school to higher education. A limitation of this study is that the analysis was conducted on only four selected articles within the last 10 years; thus, it is suggested that researchers explore a broader range of articles and establish more general boundaries.

Author(s)' Statements on Ethics and Conflict of Interest

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