The Influence of Local Wisdom-Based Learning Media On Students' Critical Thinking Ability

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ABSTRACT
Critical thinking skills are high-level thinking skills that are very important to improve in the learning process as they are one of the essential elements in the development of science and technology. In order to meet the needs of students in the era of the fourth industrial revolution, the learning media used must be suitable for these needs while still considering cultural values. The focus of this research is to examine the effect of using locally-based learning media on improving students' critical thinking skills. The research methodology was carried out by conducting a literature search consisting of seven stages, namely determining the purpose of writing, selecting database sources, selecting keywords in searching the database, conducting a literature search stage, determining inclusion criteria for articles to be used, selecting articles based on inclusion characteristics, and synthesizing 10 international journals and 10 national journals (Indonesia). Based on the research results, it was found that the use of locally-based learning media is very effective in improving students' critical thinking skills.

Keywords: *Critical Thinking, Learning Media, Local Wisdom*

1. INTRODUCTION

The significance of critical thinking has emerged as a crucial concern when confronted with the challenges presented by the era of the Fourth Industrial Revolution. The Fourth Industrial Revolution has fundamentally reshaped individuals' cognitive processes, lifestyles, and social dynamics [1]. The era of digitalization 4.0 is an era where the 4C skills (Critical Thinking, Creativity, Collaboration, and Communication) are highly needed in social interactions [2]. Critical Thinking is the most crucial skill required for daily activities in the 21st century among those four skills. Consequently, the education field must ensure the preparation of competent individuals capable of global competition in the era of the Fourth Industrial Revolution. In this era, the rapid expansion of technology, information, and communication not only simplifies our lives but also poses new challenges to education. As a result, the field of education faces the task of equipping competent individuals who can master technology, information, and communication while also developing competencies such as critical thinking skills. Therefore, this research focuses on the enhancement of critical thinking skills.

Critical thinking is a cognitive process that involves logical and reflective thinking aimed at determining one's beliefs and actions [3]. Critical thinking is essential for making informed judgments when accepting information, forming opinions based on rational, logical, and objective reasoning, and defending the validity of the conclusions reached. In essence, thinking encompasses the primary cognitive process utilized by our brains to interpret the world around us and determine how to respond to it [4]. The cognitive process encompasses the utilization of inductive/deductive reasoning, critical and holistic thinking, transformation of representations, constructing explanations based on data, thinking with the aid of models rooted in logic, and engaging in reasoning and critical analysis [5]. Critical thinking is a dynamic process wherein individuals engage in profound contemplation, self-inquiry, independent information-seeking, and a quest for deeper comprehension, rather than simply accepting information from others [6]. Consequently, elementary school students are in high demand for the skills necessary to confront the challenges of a global, digital, and rapidly evolving world that necessitates competent individuals capable of promptly adapting to prevailing changes [7].

During the pandemic, students have been learning remotely from home and have been less active in their learning. After the pandemic, many students have lost their ability to think critically due to the less effective and less supervised distance learning process, resulting in a lack of understanding of learning concepts [2]. If not

properly addressed, the low level of critical thinking skills among students will have negative impacts on subsequent levels. Students will not be able to develop their thinking in dealing with everyday problems, and this will affect the quality of education [8]. The problem-solving abilities of students do not automatically develop within them, so there is a need for media that teachers can use to guide students in problem-solving. Critical thinking can also be trained by incorporating indicators of critical thinking skills into specific learning content.

Teachers play a crucial role in creating an enthusiastic, inspiring, and creative learning environment [9]. The quality of teachers is a key factor in improving the quality of teaching and learning [10]. Teachers must possess competencies to become educators who can foster intelligent, skilled, and socially conscious learners. This means that teachers should be able to create an engaging learning process so that students will be motivated and enthusiastic about participating in their education [11]. Therefore, the role of teachers is highly significant in achieving an ideal learning process.

Learning is a system in which various interconnected components work together to achieve goals, and one of them is media, which functions as a non-verbal communication tool [12]. As a component of the system, it means that media is essential and should be utilized in every learning process. Learning media is an inseparable learning device in teaching activities. The use of advanced learning media can enhance students' critical thinking skills in the learning process [11]. The selection of media is crucial in teaching activities, so teachers must be able to use engaging learning media to stimulate students' critical thinking skills. Through media, the teacher's message to students can be effectively conveyed [13]. Effective learning media can be used by teachers in teaching with any method [14].

Media serves as a container for messages that the source or transmitter wants to convey to the target or recipient of the message [15]. The benefits of learning media can be used to provide concrete foundations for thinking, reducing verbosity, providing real experiences, and facilitating continuous thinking [16]. Learning media becomes more engaging when integrated with local wisdom, which guides students in contextual learning. Contextual learning helps students connect the material they learn with real-life situations, directing them to think critically by exploring concepts and information [17]. Based on the description above, the researcher conducted a study on the influence of locally based learning media on students' critical thinking abilities.

2. METHOD

This study is based on a literature review with seven steps, which include determining the writing objectives, selecting the database sources, choosing keywords in the database search, conducting literature search, applying inclusion criteria for selected articles, making inclusion-based selections, and synthesizing the results [6]. An article search was conducted using the ERIC and Google Scholar databases with keywords such as learning media, local wisdom, and critical thinking skills. The selected articles in this literature search were required to meet predetermined criteria, including relevant titles and content for the research purpose, written in English or Indonesian, and accessible in full. This research used content analysis as the method for data analysis. This method involves a more specific and in-depth examination of the literature sources used. In this case, the author will further examine and analyze the findings of research articles in national and international journals regarding the influence of locally based learning media on students' critical thinking abilities.

3. RESULTS AND DISCUSSION

There are 20 articles that meet the inclusion criteria and can be used in the literature search for this research. The articles used consist of a maximum of 10 citations from international journals and a maximum of 10 citations from national (Indonesian) journals. All of these articles have been reviewed using content analysis method to provide information on how the use of locally based learning media impacts students' critical thinking skills. The validation results are documented in a table that includes the item titles and validation results. The review of the articles is presented in Table 1, with the first to tenth rows representing international journals, and the eleventh to twentieth rows representing national (Indonesian) journals.

Table 1. Article Review Results

Article Titles	Results
Textbooks based on local wisdom to improve reading and writing skills of elementary school students [18]	The utilization of learning materials grounded in local wisdom is more impactful than non-integrated teaching materials when it comes to enhancing students' reading and writing abilities. Local wisdom

Article Titles	Results
	has played a significant role in improving the literacy skills of elementary school students. This study provides evidence that incorporating Indonesian language learning with local wisdom themes surpasses traditional textbooks, particularly in terms of developing writing and reading skills. Additionally, students exhibit faster comprehension, demonstrate enthusiasm, and take pleasure in independent reading.
The Effectiveness of Problem-based learning with Local Wisdom oriented to Socio-Scientific Issues [19]	Based on the findings of this study, significant improvement was observed in students' critical thinking skills, as evidenced by a substantial difference in the average scores related to conceptual knowledge and environmental literacy. The conclusion emphasizes that the incorporation of problem-based learning, infused with local wisdom and centered around socio-scientific issues, has a significant impact on students' conceptual knowledge and environmental literacy.
Development of Social Studies Learning Model Based on Local Wisdom in Improving Students' Knowledge and Social Attitude [20]	The knowledge test results of the experimental group demonstrated higher scores in comparison to the control group, suggesting that the utilization of instructional materials based on local wisdom is superior and more effective than conventional instructional materials in enhancing students' knowledge and social attitudes
Development of Animation Learning Media Based on Local Wisdom to Improve Student Learning Outcomes in Elementary Schools [21]	The research findings indicate that the instructional media created have a positive impact. The developed model can assist teachers in facilitating a more engaging learning process and improving student learning outcomes. Analysis of the data before and after the implementation of instructional media based on local wisdom in the learning process shows that the post-test scores surpass the pre-test scores, with the pre-test score at 54.82 and a significantly higher post-test score of 81.02. Based on these findings, it can be inferred that there is an enhancement in students' critical thinking skills
Design Ethnic-Math HOTS: Mathematics Higher Order Thinking Skill Questions Based On Culture and Local Wisdom [22]	The development research was carried out utilizing the ADDIE model. The outcome is a mathematics problem design that incorporates local culture and wisdom, which can be transformed into questions aimed at assessing students' higher-level abilities. These questions are designed to measure analytical skills, evaluative skills, and creative abilities. By solving culturally relevant questions, students will experience greater challenge and motivation. Moreover, this approach will enhance students' understanding of the local culture in their region
Developing an English training course for local wisdom inheritance of one village one product in Thailand [23]	Regarding the academic achievement outcomes of English training based on local wisdom, a comparison of scores before and after the training was conducted.

Article Titles	Results
	The results were analyzed using a t-test statistical analysis. It was discovered that the average scores on the English proficiency test after the training exhibited a significant increase compared to the scores before the training
Local Wisdom-Oriented Problem-Solving Learning Model to Improve Mathematical Problem-Solving Ability [24]	The research findings suggest that: (1) students who engage in a problem-solving learning model based on local wisdom demonstrate higher problem-solving abilities compared to those who follow a direct instruction model; (2) students exhibit greater proficiency in solving problems presented as open-ended mathematical problems compared to closed-ended mathematical problems; and (3) there is an interaction effect between the learning model and the type of problem, influencing problem-solving abilities. In conclusion, a problem-solving learning model that incorporates local wisdom proves effective in enhancing critical thinking abilities
Process Skill and Student's Interest for Mathematics Learning: Playing a Traditional Games [25]	A sample of 80 actively involved students was used in this study. The results of the T-statistic test for product and service solutions demonstrated that each school exhibited unique interests and process skills among its students. Furthermore, a correlation test revealed a significant relationship between students' learning interest and process skills. Consequently, the implication of this research is to promote and improve students' interest and skills
Learning about Pesticide Use Adapted from Ethnoscience as a Contribution to Green and Sustainable Chemistry Education [26]	This research introduces a novel pedagogical approach to address green and sustainable chemistry topics across different disciplines and cultures. The lesson plan presents fresh perspectives and insights for students. The learning activities actively engage students in hands-on practices, enhancing the science classroom experience. Additionally, students gain valuable experience in evaluating traditional procedures alongside alternative methods. These findings suggest that culture-based learning is effective in fostering the development of students' critical thinking skills
Ethno-Aesthetic Communication in the Context of the Formation of Technological Culture of Students in the System of Continuing Education [27]	This study employs didactic ethno-aesthetics as a means of socialization to address worldview matters. It aims to motivate students, foster the sustainable development of cognitive, practical, and significant technological qualities, and evoke a sense of engagement in work activities. As a result, it facilitates the enhancement of critical thinking skills through culture-based education
Development of Locally-Inspired Project-Based Learning Learning Media [28]	The outcomes of developing instructional media that incorporate local elements through project-based learning have been shown to improve critical thinking skills. This is evidenced by the results obtained from

Article Titles	Results
	different indicators of critical thinking, including: 1) the ability to provide explanations fluently, 2) competence in constructing fundamental skills, 3) generating original and novel ideas when drawing conclusions, 4) presenting detailed and logically coherent explanations, 5) flexibly organizing strategies and tactics, 6) engaging in coherent and objective analogical thinking, and transforming it into a logical and objective formulation
Local Wisdom in Biology Learning Innovation: Strategies for Developing Literate and Character-Building Indonesian Children for Environmental Conservation [29]	The research has resulted in the development of a product that aligns with the characteristics of students, as well as the learning materials and methods. This product effectively taps into students' potential for analytical thinking, empowering them to solve problems in a critical and creative manner
Utilizing Virtual Reality Media Based on Local Wisdom through the SAMPE Musical Instrument to Enhance Critical Thinking Skills [30]	The analysis of the results from the critical thinking test indicates that the utilization of VR media infused with local wisdom leads to an improvement in critical thinking skills. This can be attributed to the immersive nature of VR media, which provides students with firsthand experiences that facilitate better visualization and comprehension of the concepts presented in the learning material.
The Influence of Locally-Inspired PBL Model on Social Attitudes and Critical Thinking Abilities in Mathematics of Grade V Students in Cluster V of Sukasada District [31]	The findings of the research indicate the following: 1) There are notable differences in both social attitudes and critical thinking abilities in mathematics between students who are involved in the locally-inspired Project-Based Learning (PBL) model and those who follow the conventional learning model. 2) Differences in social attitudes exist between students who participate in the locally-inspired PBL model and those who follow the conventional learning model. 3) Differences in critical thinking abilities in mathematics are observed between students who embrace the locally-inspired PBL model and those who follow the conventional learning model
Development of Comic Book-based Science Learning Media to Enhance Critical Thinking Skills and Environmental Care Character [32]	The local wisdom content, critical thinking skills, and environmental care character have been validated as the primary distinguishing features, being deemed "highly valid" by a media expert validator and two content expert validators. It has also been demonstrated as practical, falling under the category of "highly practical," and effective in enhancing critical thinking skills and fostering environmental care character
The Implementation of Multimedia in Nonfiction Texts on Local Wisdom of Kediri Raya to Enhance Critical Thinking Skills [11]	The outcomes of the classroom action research conducted at SD Laboratorium UN PGRI Kediri, involving Grade IV students in the second semester of the academic year 2021/2022, reveal that the utilization of Android-based multimedia focusing on nonfiction texts about the local wisdom of Kediri

Article Titles	Results
	Raya enhances students' critical thinking skills. This is supported by the improvement in students' learning outcomes, surpassing the minimum learning achievement threshold, along with an increase in the average scores of students' learning outcomes
The Urgency of Developing Chemistry Learning Based on Local Wisdom and Tourism to Foster Students' Scientific Literacy [5]	The research findings demonstrate that the response to the concept of implementing local wisdom-oriented learning is rated as very good, with a percentage of 84.44%. The implementation of local wisdom-oriented learning can effectively boost students' learning motivation and attitudes while equipping them with skills that align closely with the demands of becoming problem solvers and catalysts for change within a community that possesses distinctive local wisdom and tourism potential
Guided Discovery Learning Based on Indigenous Knowledge to Enhance Students' Critical Thinking Skills [33]	This study utilized a local wisdom approach in its research. The analysis of critical thinking skills demonstrated that the average level of critical thinking skills among grade XI science students at SMAN 5 Samarinda was classified as moderate, with an n-gain of 0.53. Furthermore, the average effect size was 5.17, indicating a large effect based on the classification. The statistical tests (α = 5%) also indicated a significant enhancement in critical thinking skills following the implementation of the Guided Discovery Learning (GDL) model grounded in indigenous knowledge
The Use of Culture-Based PACERIN Media to Enhance Critical Thinking Skills in Early Childhood [34]	PACERIN media is a form of media that can be utilized to instill in children an understanding of the diverse cultures present in Indonesia. The research findings demonstrate that the implementation of this media enhances students' learning outcomes. This indicates an improvement in students' critical thinking skills when exposed to culture-based media
The Role of Local Wisdom Values in Education 5.0 at the Elementary Education Level [35]	The research findings reveal that by integrating local wisdom content into their teaching approaches, educators can enhance the affective, psychomotor, and cognitive abilities of students, particularly at the elementary education level. Through leveraging their creativity and utilizing technology innovatively, educators can assist elementary school students in preparing for the challenges of Education 5.0. Additionally, this approach ensures that the values passed down by their ancestors, which play a significant role in shaping the character of the nation's children, remain intact and resilient against the negative influences of globalization

The findings clearly indicate that the utilization of instructional media based on local wisdom contributes to the enhancement of critical thinking skills.

On the other hand, instructional media that is not based on local wisdom may also be employed to enhance students' critical thinking abilities

Culture has always undergone changes throughout time, as change is inevitable, and cultural changes occur rapidly due to the influx of globalization into culture [36]. According to [23], Promoting art, cultural heritage, local wisdom, religious beliefs, and information about valuable local products is essential to provide foreign tourists with knowledge about their identity and origins. This contributes to the stability, prosperity, and sustainability of a country. Therefore, learning that neglects cultural or local wisdom elements will only further diminish a nation's culture. The existence of instructional media based on local wisdom has been found to enhance critical thinking abilities. This conclusion is supported by the review of articles presented in Table 1, which highlight the positive impact of incorporating instructional media based on local wisdom in learning, leading to the development of more critical thinking skills.

Local wisdom-based instructional media is a media that highlights culture or local wisdom as its main focus. Local wisdom-based learning is one of the methods used to preserve local cultural heritage [37]. By using local wisdom as learning material, students are exploring their own character and personality. Local wisdom can serve as a valuable learning resource to enhance the quality of knowledge, values, and skills that contribute to shaping students' character [5]. On the other hand, critical thinking is a higher-level thinking that involves evaluating arguments and the ability to independently assess, analyze, and draw conclusions [38]. Essentially, critical thinking requires students to utilize logical thinking skills, emphasizing active student participation rather than passive information reception. The utility of local wisdom-based instructional media can stimulate critical thinking in real-world problem-focused situations, shifting the learning focus from solely the teacher. Instruction that incorporates local wisdom-based instructional media encompasses cultural elements present in society. Engaging in learning with local wisdom allows students to actively participate in the learning process while also gaining knowledge about and preserving their own culture.

Local wisdom-based instructional media is an effort to enhance students' critical thinking skills

After reviewing twenty articles presented in Table 1, it has been established that the utilization of instructional media based on local wisdom positively contributes to the development of critical thinking skills. The presence of such instructional media aims to foster curiosity and talent, resulting in heightened learning motivation and a beneficial impact on learning achievements.

The research conducted by [21], [31], [11], [5], and [33] shows improvements after receiving treatment with local wisdom-based instructional media. According to [5], the idea of implementing local wisdom-oriented learning has received a highly positive response, leading to enhanced learning motivation and improved attitudes towards learning among students. The integration of local wisdom into various subjects such as sociology, anthropology, chemistry, local content, cultural arts, Indonesian language, and others enables local wisdom-oriented learning to equip graduates with the necessary skills to become problem solvers and catalysts for change in communities that possess distinctive local wisdom. This is supported by the research conducted by [31] as described in their article, where learning infused with local wisdom can influence social attitudes and make the learning process enjoyable and conducive, leading to the successful attainment of students' critical thinking abilities. Learning processes infused with local wisdom make students more active and engaged, avoiding boredom during the learning process. An individual's ability to think critically can be observed through their behavior during the thinking process. Based on these findings, local wisdom-based instructional media is an innovation in the midst of rapid scientific and technological advancements. It is highly suitable for developing both fundamental and complex knowledge among students.

4. CONCLUSION

The findings of the literature review suggest that incorporating culturally grounded learning media can be an effective approach to enhance students' critical thinking in education. The implementation of culturally grounded learning media is associated with positive impacts on critical thinking abilities, leading to improved learning outcomes. The results indicate that culturally grounded learning media is effective in enhancing students' educational achievements. It is recommended to further utilize culturally grounded learning media in future education across different levels and disciplines, while also incorporating other innovative learning environments.

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