

Integrating Local Wisdom in Independent Learning: Urgency and Innovative Strategies

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Abstract

This study examines the importance of integrating local wisdom into learning and explores innovative strategies that teachers can use to develop students with strong character and essential 21st-century skills. Using a qualitative method with a case study approach, the research was conducted in primary schools in Pati and Demak Regencies, including SDN Bintoro 5, SD Plus Latansa, SDN 5 Gembong, and SDN 2 Cluwak. Data was collected through interviews, documentation, and observations, then analyzed using a qualitative descriptive approach. The results show that 75% of teachers responded positively to the integration of local wisdom, which enhances the relevance, engagement, and meaning of learning materials, while also boosting student motivation and essential skills. Teachers can promote this approach by analyzing learning difficulties, identifying local strengths, and designing lessons with appropriate methods and models. Recommended learning models include problem-based learning, STEAM based on Project-Based Learning, and Contextual Teaching and Learning (CTL), all of which have been shown to improve educational outcomes.

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INTRODUCTION

Learning based on local wisdom is an increasingly relevant approach in the context of modern education, especially in countries with high cultural diversity such as Indonesia. Local wisdom includes various aspects of life that develop from generation to generation in the community, including social values, morals, and cultural practices. Over the past few years, the urgency to integrate local wisdom into Indonesian education is increasing, especially amid the implementation of the Independence Curriculum. This is because education in Indonesia continues to grow along with the social, cultural, technological and informational conditions in the country. The Independent Curriculum developed by the government aims to improve the quality of

education, provide an enjoyable learning experience, and produce the best students, ready for a complex future with complex challenges (Suprpto et al., 2021).

This curriculum provides schools with greater flexibility to adapt learning materials according to the local needs and cultural characteristics of each region. Local wisdom that includes cultural values, traditions, and social practices plays an important role in the formation of students' identity, and the conservation of cultural heritage. The integration of local wisdom in education aims to provide relevant and contextual education to students, in addition to building their personality based on the moral and social values that exist in society. This is important, considering that one of the main objectives of the Independence Curriculum is to form Pancasila Students who have a national perspective and are rooted in local culture. (Asbari & Santoso, 2023).

Previous studies have shown that the integration of local wisdom into the curriculum provides significant benefits. (Santika, 2022), explaining that the implementation of learning based on local wisdom is very important to be applied in the independent curriculum. Values, customs, and knowledge embedded in Indonesian society are contained in local wisdom. This is in line with (Agus et al., 2021), the integration of local wisdom in education not only functions as an effort to preserve culture, but also as a tool to enrich the learning process by providing a more relevant and meaningful context for students. Amid the challenges of globalization that are increasingly eroding local identity, education based on local wisdom has an urgent need to form a generation capable of understanding and appreciating their own culture, while remaining competitive in the global arena. (Rahman et al., 2021)

(Simanungkalit et al., 2024), emphasizes that learning based on local wisdom can enrich students' learning experience by delivering more relevant and real-life-based material. Research conducted by (Ismaya et al., 2022) also emphasized that the integration of local culture into the curriculum not only strengthens students' identity but also increases their understanding of the social and environmental context. Thus, the implementation of local wisdom is not only relevant in the context of formal education but also important for the development of students' personality in daily life (Shufa, 2018). The implementation of learning based on local wisdom is very important to be used in the independent curriculum. The values, customs, and knowledge embedded in Indonesian society are contained in local wisdom (Santika, 2022)

Meanwhile, an example of successful integration of local wisdom is the implementation of Integrated STEAM learning based on Local Wisdom studied by (Shufa et al., 2024) in the study it was found that the integration of local wisdom proved not only to increase meaningful learning. and student character but also become an Important Strategy in Improving the 4 C's in the 21st Century. This example illustrates how important it is to apply local wisdom in the context of a modern curriculum such as the Independent Curriculum, where education is not only focused on academics, but also culture-based personality development and meaningful learning. The findings of the study are in line with the belief that learning based on local culture is able to build student character in line with Pancasila values, such as mutual cooperation, tolerance, and love for the environment.

Furthermore, (Jumriani et al., 2021) explains that students who receive learning based on local wisdom are taught to remain grounded in the real world conditions they face. The potential of each place can be preserved through education based on local wisdom. It is necessary to revive local wisdom from regional potential. Based on the various views that have been presented, the

principles and goals of autonomous curriculum implementation are in line with the incorporation of local wisdom in the education process. Through learning based on local wisdom, students can understand academic concepts in a more contextual and meaningful way. This shows that learning based on local wisdom not only preserves culture, but also improves the quality of learning.

Although several studies have successfully demonstrated the benefits of integrating local wisdom into learning, there are still gaps in its comprehensive application at various levels of education. Existing research tends to focus on the application of local wisdom in certain subjects or cultural contexts, while a systematic approach that covers the entire spectrum of the curriculum at various levels of education is still minimal. In addition, there have not been many studies that explore strategies that can be used to ensure that the integration of local wisdom can run effectively across subjects and broader educational contexts. In addition, the challenges faced by educators in adapting local wisdom into the Independent curriculum have not been fully answered. This indicates an urgent need to develop more systematic, innovative approaches and strategies in integrating local wisdom into the curriculum (Rahma et al., 2024)

Facts on the ground show that many teachers in various regions face difficulties in integrating local wisdom into their daily lesson plans. This problem also occurs in the Pati Regency. Based on the findings of preliminary observations, it was discovered that two major issues facing educators are the dearth of resources that comprehensively integrate local wisdom and the absence of teacher preparation programs that incorporate local values.

Furthermore, according to 68% of educators in Pati Regency, integrating local wisdom is not the primary goal of the plan to raise student achievement in the classroom. These results indicate that, while the Independent Curriculum grants schools the latitude to create curricula that suit the specific setting in which they are located, in reality there are still many schools that do not have adequate resources or knowledge to implement this approach optimally (Shufa, et.,al, 2024).

Based on the description above, the author wants to know more about the importance of implementing local wisdom in classroom learning in order to create learning that not only provides knowledge to students but also fosters a sense of love for the uniqueness of regions. In addition, the author also analyzes strategic steps in integrating local wisdom into the Independent Curriculum. This study aims to explore, examine and obtain an in-depth descriptive picture of the importance of implementing local wisdom in learning in elementary schools in the era of independent learning and analyze innovative strategic steps that teachers can take in implementing local wisdom-based learning. in the independent curriculum.

METHOD

This research combines a case study methodology with a qualitative approach. This method was chosen because it is relevant and allows researchers to explore in depth how the urgency of integrating local wisdom in learning and strategic steps for integrating local wisdom are applied in the context of learning in the Independent Curriculum in schools.

The research design consists of several stages, namely: (1) Identification of problems and formulation of research objectives, (2) Data collection through interviews and observations, (3)

Data analysis with a qualitative descriptive approach, and (4) The conclusion of results and recommendations for implementing strategies based on local wisdom.

The research population in this study was elementary schools in Pati Regency and Demak Regency. Samples used were SDN Bintoro 5 and SD Plus Latansa which are elementary schools in Demak Regency. While the samples in Pati Regency were SDN Gembong 5 and SDN 2 Cluwak. Four schools were selected for this study because of their relevance to the integration of local wisdom in learning in the Independent Curriculum. Among the criteria for selecting research samples in this study were that the school had extensive experience in integrating local wisdom, was located in a culturally rich area, and supported educational innovation through active participation in training programs and collaborative initiatives.

The subjects of the study were teachers and students, with four classroom teachers and thirty children in each school. The selected research subjects are considered to have relevant expertise and are accustomed to using local knowledge for education. In-depth interviews with principals, instructors, and students became the method of data collection for this study, which aimed to determine the importance of local wisdom in education. In addition, interactions between students and teachers and activities in the classroom are directly observed. Documentation of syllabi, lesson plans, and teaching materials is also conducted to assess their integration in formal learning. The research instruments used include a semi-structured interview guide to explore the experiences and views of teachers and students, as well as an observation guide to observe the learning process. Data validation is done using data triangulation techniques.

Data analysis was carried out descriptively qualitatively. The data analysis process involves data reduction, categorization and coding, data interpretation, and drawing conclusions. Data is organized based on relevance and ignores irrelevant or non-relevant data. Key themes emerge, including the urgency of integrating local wisdom, innovative strategies, challenges, and impact on students. The data is then interpreted to identify patterns and support the hypothesis. Conclusions are drawn to provide recommendations for effective strategies in integrating local wisdom into the Independent Curriculum.

RESULTS AND DISCUSSION

Results

The implementation of local wisdom in the classroom is an attempt to create independent curriculum that not only imparts knowledge to pupils but also cultivates a love of the uniqueness of their community. In keeping with this, an essential component of the Independent curriculum is the incorporation of local wisdom, where the implementation of the Pancasila student profile is the primary feature of the Independent Curriculum. Therefore, character education or habituation can be achieved by the appropriate application of Pancasila's noble traits found in local culture. It has been proven that schools that utilize school culture to strengthen character education have better performance than schools that do not utilize it optimally. In order to produce students with noble character and improve the skills needed by Indonesia in the 21st century, this research aims to describe in detail the findings related to the relevance and importance of learning based on local wisdom as well as analyze creative strategies that can be used by teachers in implementing learning based on local wisdom in era of independent learning. The complete study results are described as follows.

The Urgency of Learning Based on Local Wisdom

This research aims to determine teachers' responses to understanding, urgency, application, obstacles and support needed in integrating local wisdom in elementary school learning. Questionnaire questions cover the following aspects: (1) Understanding of local wisdom. (2) The importance of integrating local wisdom in the curriculum. (3) The level of application of local wisdom in learning. (4) Barriers to integrating local wisdom. (5) Support is needed to integrate local wisdom. The following are the results of the teacher's responses regarding understanding and the importance of integrating local wisdom in learning.

Table 1. The percentage of understanding, urgency, application, barriers and teacher support required in integrating local wisdom in learning.

Aspect	Indicator	Percentage
Understanding Local Wisdom	Very Understanding	45%
	Understand	30%
	Just Understand	15%
	Lack of Understanding	10%
The Urgency of Integrating Local Wisdom in Learning	Very important	75%
	Important	20%
	Less important	5%
	Not important	0%
Level of Implementation of local wisdom	Always apply	20%
	Apply Sometimes	35%
	Rarely Happens	30%
	Never Apply	15%
Barriers to Integrating Local Wisdom	Lack of resources (books, teaching materials)	40%
	Lack of support from school	15%
	Lack of teacher understanding	35%
	Lack of time to study	10%
Support is Required to Integrate Local Wisdom	learning development training	50%
	Collaboration	35%
	School policy support	15%

The findings from this data show that teachers' understanding of local wisdom is quite good, with 45% of teachers stating that they really understand the concept and another 30% claiming to understand it quite well. This high level of understanding can be caused by the local cultural background inherent in most teachers in the area where the research was conducted. Local wisdom has become an integral part of social life, which then encourages their understanding of these cultural values. However, there are still 10% of teachers who feel they do not understand local wisdom, which shows that not all teachers receive adequate exposure or training regarding the integration of local cultural values in education.

Regarding the importance of integrating local wisdom in learning, 75% of teachers consider this to be very important, while 20% consider it important. This indicates that most teachers realize the strategic value of local wisdom in building students' identities and strengthening the relevance of education to their social context. Local wisdom is seen as a tool to shape students' character, preserve culture, and strengthen the bond between formal knowledge and everyday life. Meanwhile, 5% of respondents who rated the importance of this integration as

less important may reflect their focus on curriculum material that is more global or general in nature, which is considered more relevant for broader academic achievement.

The use of local wisdom in education is still subpar, though. Only 20% of teachers always apply it, while 35% do it sometimes, and 30% rarely apply it. This low adoption rate can be caused by a variety of barriers, including a lack of time and supportive resources. The majority of teachers, 40%, said that a lack of teaching materials and resources, such as relevant books, was the main obstacle in implementing local wisdom. In addition, 35% of teachers also admitted that they did not understand how to systematically integrate local wisdom in their teaching, indicating a need for more focused training. Other obstacles such as lack of support from the school (15%) and limited time (10%) also influence the low level of implementation.

To overcome these barriers, teachers identified a number of necessary supports. As many as 50% of teachers proposed training to develop learning based on local wisdom as an urgent need. This training is important to equip teachers with effective strategies for integrating local values in learning. Additionally, 35% of teachers felt that collaboration with cultural experts or community leaders could help enrich teaching resources. 15% of respondents said that policy support from schools was vital. While this is a small percentage, it highlights the significance of institutional commitment in promoting learning based on local wisdom. Generally, despite widespread recognition of the value of local wisdom, there are still obstacles to its use, such as a lack of funding and support. More integrated efforts are needed through training, provision of resources, and collaboration with local communities to optimize the integration of local wisdom in learning.

In addition, based on observational data, it was found that the inclusion of learning based on local wisdom improves the quality of education. The results of the study show that the application of local wisdom greatly increases the relevance and contextualization of student learning, which can be seen from the majority of teachers who evaluate this approach as very effective in relating the lesson material to the students' daily lives. Furthermore, a significant jump in student engagement is seen during the learning process, showing their active involvement in increasingly dynamic and significant activities.

It has also been demonstrated that learning grounded in local wisdom fosters the growth of 21st century competencies, particularly in the areas of creativity, critical thinking, communication, and teamwork. This shows that the integration of local cultural values not only enriches learning content, but also strengthens students' ability to adapt and innovate. Also, including local knowledge into the classroom helps children develop a stronger sense of cultural identity and character by helping them recognize and value their cultural history. Overall, these findings demonstrate that incorporating local wisdom into instruction greatly enhances educational quality and fosters students' overall character development. The complete results of the findings can be seen in the following table.

Table 2. Improvement of Learning Quality Based on Local Wisdom

Indicator	Very Good	Good	Enough	Lack
Increase the relevance and contextualization of learning for students	80%	15%	5%	0%
Increase student involvement in learning	70%	20%	5%	5%
Improving students' 4 Cs skills	75%	20%	5%	0%
Strengthening cultural identity (student character)	78%	15%	7%	0%

Table 2 results demonstrate a noteworthy improvement in learning based on local wisdom quality across a number of key dimensions. The first is increasing the relevance and contextualization of learning for students, with 80% of teachers assessing that learning based on local wisdom is very good in increasing the relevance of learning for students, while 15% assess it as good, and only 5% assess it as sufficient. There were no teachers who felt that the application of local wisdom in learning was less effective (0%). Most likely, this increase occurred because learning based on local wisdom was able to link academic material to students' daily lives, making it more contextual and meaningful. Students can understand how the material learned in class relates to their culture and traditions, which encourages greater interest and engagement.

In the aspect of increasing student involvement in learning, 70% of teachers assessed that student involvement had increased greatly, while 20% assessed the increase as good, and 5% assessed it as sufficient. Only 5% of teachers felt the use of local knowledge in education did not sufficiently increase student involvement. Learning that integrates local wisdom tends to be more interactive and participatory, because students not only learn from textbooks, but also from the experiences, traditions and social interactions they experience in everyday life. This creates a more dynamic learning environment and motivates students to be more actively involved, both emotionally and intellectually, because they feel more connected to the material being taught.

Furthermore, with regard to enhancing students' proficiency in the four Cs: critical thinking, communication, collaboration, and creativity, 75% of teachers assess local wisdom-based learning as very good in improving these skills, while 20% rate it as good, and 5% rate it as sufficient. There is no teacher who thinks the development of 4 C skills is hindered by local wisdom (0%). This shows how encouraging students to study and criticize cultural values through the incorporation of local wisdom can foster critical thinking in themselves. In addition, group work that often involves discussions about local traditions or practices helps develop students' communication and collaboration skills, while their creativity is stimulated when they are asked to generate ideas or solutions based on local wisdom.

The final aspect is strengthening students' cultural identity and character, where 78% of teachers assess local wisdom-based learning as very effective, while 15% rate it as good, and 7% rate it as sufficient. There were no respondents who rated this learning as less effective (0%). This increase can be attributed to the role of local wisdom in instilling cultural values and positive characters that are in accordance with the identity of the local community. Students who engage in local wisdom-based learning are more likely to develop a sense of pride in their culture, as well as strengthen their social and cultural identity. This process also plays a role in shaping students' character, such as respect, togetherness, and social responsibility, which are core values of many local traditions.

All things considered, the potential of local wisdom to produce meaningful and pertinent learning experiences for students explains the rise in the caliber of learning based on it. This method of teaching connects students with their cultural roots, gives them a sense of belonging, and encourages active participation in the learning process, which may be the cause of higher student engagement and the strengthening of cultural identity. This enhances students' critical thinking, communication, teamwork, and creative thinking abilities as well, which makes it a highly successful strategy for raising educational standards overall.

Innovative strategies that teachers can use to develop local wisdom-based learning in the curriculum

The implementation of the Independent Curriculum allows teachers to integrate local wisdom in learning through three options: integrated into other subjects, through a project to strengthen the Pancasila student profile, or as a separate subject for two hours. Innovative strategies that teachers can use in developing local wisdom-based learning in an independent curriculum are as follows.

1. Analyze learning difficulties and conduct basic studies of the learning environment at school including potential and problems that occur
2. Make a list of prospective components of local excellence,
The following procedure should be followed to list the components of potential local advantages: (a) The first step is to list the potential advantages of the region in terms of origin, human resources, geography, history and culture; (b) consider the potential for local advantages in the area c) collect the necessary information through literature reviews, literature review, information recording, interviews, or observations; d) carry out a collective assessment and identify every aspect of every local advantage in the region. (e) Determine elements of local wisdom that can be integrated into the curriculum, such as customs, traditions, folklore, traditional games, local technology, etc.
3. Analysis of the current curriculum.
Analyzing the current curriculum aims to identify where local wisdom can be integrated. Apart from that, teachers also need to assess the suitability of integrated local wisdom with learning objectives, student competencies and the material to be taught.
4. Developing Teaching Materials Based on Local Wisdom
It can be integrated when the elements of local excellence have been examined, as well as the appropriateness of learning objectives, student competency, and local wisdom. The next stage is to create instructional materials and learning tools, such as media, student devices, and learning activity instruments, that are blended with local expertise.
5. Develop learning design
Learning based on local wisdom can be done using creative and innovative learning methods. Teachers can use local wisdom as a reference in developing learning materials that are relevant to students' lives. Rare things that teachers can do are as follows. (1) Choose learning methods and models that suit student needs, such as project-based learning, contextual learning, problem-based learning. (2) Designing learning activities: Designing learning activities that actively involve students, such as field trips, traditional games, group discussions, and projects based on local wisdom.
6. Implementation of Learning Designs developed in class

7. Evaluation and Reflection
8. Evaluate learning processes and outcomes to assess the effectiveness of local wisdom integration.
9. Reflection and Improvement: Reflect with teachers and students to get feedback and make continuous improvements.

By integrating local wisdom into each stage of learning, teachers can create learning that is not only culturally relevant but also increases student engagement, develops 21st century skills, and strengthens student identity and character.

The Application of Models and Learning Approaches Based on Local Knowledge Effectively Improves the Quality of Student Learning

Recommendations for Innovative Learning Models that can be integrated with Local Wisdom based on the results of research conducted are as follows.

a. Problem Based Learning Model

The research results show that the learning model Problem Based Learning (PBL) significantly facilitates the implementation of learning in the classroom by emphasizing the importance of critical thinking in problem solving. In the PBL approach, students are faced with real problems relevant to everyday life, including local contexts, which they must solve through a process of investigation, analysis and collaboration. This technique not only promotes student participation in the classroom but also fosters the development of critical thinking abilities since it requires students to assess available data, determine potential solutions, and select the most effective course of action. The following is documentation on the implementation of problem-based learning by applying local wisdom at SDN Gembong 5.



Figure 1. Application of the PBL model based on local wisdom

The image above is a manifestation of the implementation of Problem Based Learning (PBL) in Natural and Social Sciences (IPAS) learning in class V with the material of finding electricity from natural products, such as tubers found in the Gembong area, which can be done with an approach that integrates context. local in problem solving. In this scenario, students will be invited to explore how natural materials available around them, such as tubers, can produce electricity through chemical reactions. This learning not only encourages critical thinking skills in solving scientific problems, but also strengthens their understanding of the use of local natural resources.

The teacher starts by identifying the problem, namely how to find environmentally friendly alternative energy sources using materials available in the local environment, such as tubers. Students are introduced to the fact that tubers such as potatoes or cassava in Gembong can produce electricity through simple chemical reactions. Teachers can also relate this material to the need for renewable energy in everyday life, which is relevant to the local social and environmental context. During the core activity, students will conduct experiments directly in class using tubers available in the Gembong area. In this process, students will learn how natural materials such as bulbs can act as electrolytes that allow electric current to flow. They will measure the amount of electricity produced and discuss factors that influence the results of the experiment, such as the size of the bulb or the type of metal used.

Through the implementation of Problem Based Learning in science and science learning with the material "finding electricity from tubers", students not only learn about the basic principles of electricity and alternative energy, but are also involved in learning that is contextual, meaningful and relevant to their lives. This approach increases student engagement because they are dealing with real and directly applicable problems, as well as strengthening their cultural identity by connecting science with local wisdom. This education adheres to the Independent Curriculum's guiding principles, which place a strong emphasis on adaptable, situational, and student-centered learning.

b. STEAM based on Project-Based Learning

The skills needed in the 21st century can be enhanced through a comprehensive learning experience that combines STEAM based on Project-Based Learning with local wisdom. With the help of this model, students are placed in scenarios that require the use of critical thinking to solve problems, creativity in completing projects, cooperation in collaboration, and excellent communication to communicate concepts and results. The connection of this project with local wisdom, such as the construction of a model of the Great Mosque of Demak, also incorporates a cultural component that enhances the educational process and increases the relevance of what is learned to students' daily lives. The Independent Curriculum's guiding principles, which place an emphasis on helping students develop 21st century abilities in a relevant and contextual setting, are adhered to in the application of this model. The following is an example of the results of implementing STEAM based on Project-Based Learning with the application of local wisdom at SD Plus Latansa.



Figure 2. Implementation of the Pjbl Model Based on Local Wisdom

STEAM based on Project-Based Learning model places students in a situation where they have to solve real problems related to creating a model of the Great Mosque of Demak. To create this model, students must analyze various aspects, such as the architectural structure, materials used, and the cultural philosophy underlying the mosque design. In this process, students are faced with the challenge of evaluating various information, determining the best solution, and applying scientific and engineering concepts to solve model construction problems.

Critical thinking is developed when students have to assess the various options available, for example in selecting building materials or construction techniques that best suit the characteristics of the mosque. They also need to understand the relationship between mathematical dimensions and the stability of building structures, encouraging in-depth analysis and logical thinking in decision making. The STEAM project provides a space for students to develop their creativity in designing and building mosque models. It not only covers technical aspects, but also involves artistic and aesthetic elements, such as the typical Javanese ornamental decoration found in the Great Mosque of Demak. Students are given the freedom to express their creativity in translating traditional elements into aesthetic models, including the use of color, carvings and other artistic forms.

In the context of a project such as the creation of a model of the Great Mosque of Demak, collaboration is key in ensuring every aspect of the project. In addition, good communication is needed to ensure that each team member understands their respective duties and roles, as well as to resolve conflicts or differences of opinion that may arise during project work. Presentation of project results is also an important part of the learning process, where students are trained to explain scientific concepts, work processes and final results to an audience.

Overall, this STEAM based on Project-Based Learning model integrated with local wisdom provides a comprehensive learning experience that directly improves students' 4 Cs.

c. Contextual Learning Model

Students' critical thinking abilities can be effectively enhanced by applying the Contextual Teaching and Learning (CTL) approach in conjunction with local wisdom since it links learning to authentic contexts that are pertinent to students' lives. By using situations or problems that are close to their environment and culture, students are invited to analyze, evaluate and find creative solutions, so that their critical thinking skills are honed. Here is an illustration of what happens when SDN Bintoro Demak uses local wisdom in conjunction with contextual learning:



Figure 3. Application of the CTL Model Based on Local Wisdom

The image above is a form of developing mathematics content learning in class V. In this learning the teacher applies a contextual teaching and learning model based on local wisdom. Teachers utilize the results of their local potential as learning media.

In its application to learning to make advertisements from local products in their region, students are asked to choose typical regional products, such as crafts or local food. They are then asked to analyze the product's advantages and disadvantages, understand the target market, and design creative and persuasive advertising. This process encourages students to think critically in determining marketing strategies, selection of language and visuals that are in accordance with local cultural values, and evaluating the effectiveness and creativity of the advertisements created. Thus, the application of local wisdom in CTL learning can build students' analytical skills while encouraging pride in their local products and culture.

Discussion

The study's findings provide an explanation for the goals of the investigation. The study's findings highlight how crucial it is to include local knowledge into instruction in order to give students a meaningful, relevant, and contextualized education. Learning grounded in local knowledge enhances academic content in addition to, but also plays a role in strengthening cultural identity, building character, and fostering a sense of pride in local cultural heritage (Simanungkalit et al., 2024). Through innovative approaches, such as Problem Based Learning (PBL) and project-based STEAM, the CTL model can facilitate students' improvement of the 4 Cs (critical thinking, creativity, collaboration, and communication) in contexts that are relevant to their lives and local environment.

Therefore, integrating local wisdom in learning has relevance and importance in improving the quality of education (Rahma et al., 2024). The research results prove that local wisdom helps students understand cultural values that are relevant to everyday life, improve 4Cs skills, understand the cultural roots and history of the nation, and increase their sense of pride in local culture. Therefore, In the age of independent learning, incorporating local knowledge into education is crucial (Shufa et al., 2024).

The aim of education based on local wisdom is of course the many benefits that students get from this learning. These objectives include: 1. Ensure that students are aware of the benefits of social life and understand various aspects of wisdom (Rahma et al., 2024) 2. are capable of earning money and competing at the national level while preserving the superiority of local resources, culture, and customs through cultivation. The positive values it contains (Rustan Effendi, 2020) 3. In order for the region to develop rapidly in line with global trends, students must be able to love their home country, be confident in the future, and strive to realize their potential (Shufa, 2018).

Learning that upholds cultural traditions and local wisdom has been proven to strengthen students' critical thinking abilities in preparation for the Industrial Revolution. 4.0 (Rihayati et al., 2021). Therefore, it is important that education in schools is based on community wisdom. For example, it is important to include critical thinking skills and the use of teaching materials that incorporate local wisdom into the classroom.

Meaningful learning can be produced through learning based on local wisdom (Lyesmaya et al., 2020). The benefits of learning are more pronounced when students utilize the potential of local wisdom that exists in their daily environment because what they learn can be applied in real

world situations (Adji & Shufa, 2024). The findings of this study are supported by research carried out by (Rohmah, Sa'idatur., Achmad Hilal Madji., 2022). which states that the use of teaching materials based on folk wisdom is effective in improving student learning outcomes. In line with the research above. The integration of local wisdom in learning materials has proven to be effective in improving students' critical thinking skills (Fridayanti et al., 2022), (Murtono & Shufa, 2022).

In the independent curriculum, teachers can utilize local wisdom in projects to strengthen the profile of Pancasila students. This can help students understand Pancasila values that are relevant to local wisdom and improve the quality of education (Holilah et al., 2024). The results of observational research are verified by teacher interviews, which demonstrate that in order for teachers to successfully incorporate learning into the classroom, they still require resource guides and detailed methods and strategies that promote dynamic and interesting learning.

Furthermore, the information offered can encourage students to express their ideas and ask questions. In addition, local wisdom uses the principle of reflection to help students concentrate on difficult problems in the real world and find solutions through self-awareness, critical thinking, problem solving, teamwork and independent learning (Lubis et al., 2022). As a result, students can concentrate on their studies, encourage creativity and a sense of responsibility, improve communication skills, collaborate with others, do problem-solving exercises, foster good attitudes, and increase motivation.

Moreover, problem-based learning, project-based learning, and contextual teaching and learning models are suggested as local wisdom-based learning models that instructors can successfully use based on the research's findings. The outcomes of earlier studies that established the efficacy of this strategy also support these findings. The results of supporting research on the use of problem-based learning models based on local wisdom are compared in the following manner.

Research (Torro et al., 2021) shows the effectiveness of the PBL model in learning, showing that student understanding and learning outcomes increase, and student learning activities increase. Teachers and students gave high marks to the implementation of the model that included the learning environment, social systems, teacher behavior, student activities, support systems, and syntax. In addition, (Asterli et al., 2022) explained that local culture-based learning strategies have a significant impact on students' critical thinking skills

Students' critical thinking abilities and social attitudes are enhanced when the local wisdom-based Problem Based Learning (PBL) learning approach is implemented (Soraya et al., 2019). The results of the research above are similar to the results of research conducted (Syahidi et al., 2020) where 1) The calculation results show that there is an influence of problem-based learning (PBL) based on local wisdom on student learning achievement; H_0A rejected; 2) The research results show that there is an influence of critical thinking skills on student learning achievement; H_0B rejected; and $F_{table} > F_{table}$ 5.51 > 4.00. This is because a series of educational exercises known as "Problem Based Learning" (PBL) emphasizes methods of approaching problems from a scientific perspective (Mulyanto et al., 2018)

Various findings show that the use of the PBL model is effective in learning because problems that enable students to build their own knowledge, increase their level of inquiry, and sharpen their thinking skills are the main focus of problem-based learning. When faced with

scenarios that require courage, reasoning, and active solutions, students must be able to find temporary solutions. To overcome these problems, students must also increase their independence, self-confidence and perseverance.

Furthermore, through collaborative projects characterized by project-based learning that requires teaching and contextual knowledge, the PBL method requires students to understand and perfect learning concepts. Research has shown that PBL allows students to develop into interactive learners. PjBL allows students to create products, test them, and share the results, this helps focus learning (Purwaningsih et al., 2020) Students are instructed to produce a project when learning with the Project Based Learning methodology. Students will gain independent knowledge expansion, improve problem-solving abilities, and grow critical thinking and communication skills as a result of project work.

Meanwhile, in the CTL model, contextual learning can facilitate the teacher's ability to connect the curriculum with real world situations (Shufa, 2022). Students' critical thinking abilities in solving real life problems are strengthened through the Contextual Learning paradigm; in other words, problem solving skills are also strengthened (Kusumasari et al., 2020). In learning Indonesian, students' listening skills are greatly influenced by the contextual learning paradigm based on local wisdom (Rahmawati & Rohim, 2020). Students' problem solving skills are also effectively improved by using CTL based on local wisdom. This is because the problem solving process skills method is based on the idea that each student must be given the opportunity to independently explore and develop his or her own conceptual understanding.

This research also reveals several challenges or limitations in implementing local wisdom-based learning. The main challenge is the availability of resources such as teaching materials and literature that support the integration of local wisdom. In addition, the lack of training for teachers in designing learning based on local culture is often an obstacle in implementing this approach effectively. Teachers need support in the form of training and professional development to be able to develop learning strategies that are relevant to the environment and student needs. Institutional support factors such as school policies are also very important in facilitating consistent and sustainable implementation.

In addition, there are challenges regarding the balance between local and global material in the curriculum. Although learning based on local wisdom is important, the curriculum must also prepare students for global challenges. Therefore, teachers must be careful in integrating local material without ignoring broader learning needs at the national or international level.

Overall, although challenges exist, the potential for learning based on local wisdom is enormous in supporting holistic and sustainable education. With innovative strategies and adequate support, this learning can be an important instrument in strengthening students' 21st century skills and cultural identity, which is in line with the vision of the Independent Curriculum.

CONCLUSION

Based on research results obtained through interviews, observations and documentation, it can be concluded that integrating local wisdom in learning is very important, as shown by 75% of teachers who support this idea. Integrating local wisdom has been proven to be able to improve the quality of education, because learning material becomes more relevant, interesting and meaningful for students. This approach not only encourages students' motivation and engagement

in the learning process, but also strengthens their cultural identity. Apart from that, local wisdom helps students to better understand their social environment, and encourages critical thinking and creativity in finding solutions and thinking innovatively.

In the context of the Independent Curriculum, the integration of local wisdom allows teachers to develop learning independently, taking into account local potential and student needs. Teachers can identify learning difficulties experienced by students, explore potential local advantages, and link them to the applicable curriculum. Developing teaching materials that are appropriate to the local context is also an important part of this process. Apart from that, teachers can design attractive learning designs, choose learning methods and models that suit students' conditions, and use learning media that is integrated with local potential.

Teachers are advised to employ problem-based learning, STEAM-based project-based learning, problem-based learning, and contextual teaching and learning as successful and suggested learning methods when integrating local wisdom. These three methods guarantee that learning stays applicable to students' everyday lives while simultaneously promoting the development of 21st century abilities including critical thinking, creativity, communication, and teamwork.

However, this research also has limitations. One of them is the lack of supporting resources, such as teaching materials and learning media that are specifically integrated with local wisdom. In addition, teacher training to design learning based on local wisdom is still limited, so teachers need further support to increase their competence in this area. This research also focuses on a specific region, so the results may not be fully applicable to regions with different cultural characteristics.

For future research, it is recommended to expand the scope of the study area, in order to accommodate various forms of local wisdom from different regions. Further research can also explore the development of digital learning media that integrate local wisdom, in order to increase access and effectiveness of learning in various educational contexts. Apart from that, more intensive training is needed for teachers to ensure that the implementation of local wisdom-based learning can run well in various school environments.

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