

## Development of Character Education Based on Local Wisdom in East Java, Indonesia

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### ABSTRACT

This study aims to develop a mobile application based on local wisdom in East Java to support character education for students in the digital era. The application is designed to introduce local cultural values to students in an engaging and interactive way. The research method used is Research and Development (R&D) with the ADDIE model approach (Analyze, Design, Develop, Implement, Evaluate). The results show that the use of this mobile application significantly enhances students' understanding of local wisdom, strengthens their sense of nationalism, and reinforces their cultural identity. Additionally, the application contributes to improving positive attitudes such as honesty, responsibility, and mutual cooperation. However, there were some technical issues related to the application's performance that need to be addressed. This study contributes to the development of technology-based learning media for character education that is more contextual and relevant to local cultural values.

**Keywords:** character education, mobile application, local wisdom.

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### Article history

*Received:*  
*September 14, 2024*

*Revised:*  
*January 21, 2025*

*Accepted:*  
*February 18, 2025*

*Published:*  
*June 1, 2025*

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### INTRODUCTION

Character education is an essential aspect of the education system, aimed at shaping the younger generation to be not only intellectually competent but also to possess strong morals and ethics (Sudarwo et al., 2023; Utami et al., 2022). In Indonesia, character education has become an integral part of the education curriculum, in line with the government's efforts to improve the quality of human resources (HR) (Utami et al., 2022). However, the challenge in implementing character education lies in making these values relevant to the local context and the needs of the students. One approach to address this challenge is through the development of character education based on local wisdom (Trilaksana et al., 2023).

In East Java, local wisdom encompasses cultural values, traditions, and norms that have been

passed down from generation to generation (Hasanah et al., 2023; N. N. Hidayati et al., 2021). Examples include values such as mutual cooperation, tolerance, politeness, and respect for elders. These values are not just cultural heritage but also hold great potential in shaping students' character. Unfortunately, in practice, formal education in East Java often focuses more on academic aspects and less on utilizing local wisdom as part of the learning process (Puspita & Setyaningtyas, 2022). East Java, as one of the largest provinces in Indonesia, is rich in cultural diversity, with traditions such as tahlilan, selamatan, and village meetings that teach values of togetherness, harmony, and deliberation (Huda et al., 2023). However, in education, this potential has yet to be fully optimized. Data from the Ministry of Education, Culture, Research, and Technology indicates a gap between the understanding of character education concepts taught in schools and their

application in students' daily lives. This condition highlights the need to integrate local wisdom values into character education, providing a more holistic and relevant learning experience for students.

Previous studies have shown that education based on local wisdom can increase students' awareness of their cultural identity and strengthen their love for the homeland (Fauziah et al., 2019). Furthermore, character education rooted in local values can be an effective tool in facing the challenges of globalization, which often erodes traditional values. Given the importance of this issue, systematic efforts are needed to develop a model of character education based on local wisdom, particularly in East Java. Several studies have emphasized the importance of local wisdom as a foundation in character education. Research by Hasanah et al. (2023) states that education based on local wisdom helps students appreciate and preserve cultural heritage. They found that by integrating local values such as mutual cooperation, respect for elders, and simplicity into the curriculum, students showed significant improvement in social and moral attitudes.

Moreover, research by Nuraeni et al. (2024) shows that local wisdom-based learning models in rural schools in East Java not only improve students' character but also motivate them to become more active in their learning activities. This indicates that local wisdom can be an effective strategy in enhancing student engagement in schools. Other research by Huda et al. (2023) reveals that character education based on local culture fosters attitudes of tolerance and respect for differences, which are crucial in Indonesia's diverse context. The implementation of this program was also found to have a positive impact on students' social and emotional development, contributing to the creation of a more inclusive learning environment.

While numerous studies have demonstrated the effectiveness of character education rooted in local wisdom, most remain broad in scope and have not specifically examined how East Java's local wisdom can be integrated into the

education system. Much of the existing research has focused on regions such as Yogyakarta or Bali, which have distinct cultural contexts from East Java (Miranti et al., 2021). Additionally, previous studies have yet to provide practical guidance for teachers and educational institutions in East Java, limiting their applicability.

A comprehensive approach is still lacking in identifying local wisdom values while simultaneously developing practical teaching modules that align with the Merdeka Belajar curriculum (Rambung et al., 2023). Most prior research has been descriptive or exploratory, without offering in-depth evaluations of the effectiveness of local wisdom-based educational models in schools. This gap underscores the need for an empirically tested model of character education that is specifically tailored to East Java's cultural context.

Building on this foundation, this study aims to develop a character education model based on East Java's local wisdom. The research is expected to strengthen character education by making it both contextually relevant and adaptable to contemporary educational challenges.

## **METHOD**

This study uses the Research and Development (R&D) method to develop a mobile application that supports character education based on local wisdom in East Java. The research method employed is the Research and Development (R&D) approach with the ADDIE model (Analyze, Design, Develop, Implement, Evaluate) (Sugiyono, 2020). The initial stage of the research involves literature review and needs analysis through interviews and questionnaires with teachers, students, and parents to understand their perceptions and needs in integrating local values into learning (Sugiyono, 2019). Additionally, Focus Group Discussions (FGD) with cultural and educational experts will be conducted to determine the key features that should be included in the application, such as interactive learning materials, educational quizzes, and local story-based games.

Next, the researchers will enter the application development stage by designing the user interface (UI/UX) and features based on the needs analysis results. The application will then undergo alpha testing by the development team and beta testing in several schools in East Java to evaluate its usability, effectiveness, and acceptance by students and teachers. Feedback from this limited trial will be used to refine the application before proceeding to a broader field trial. At this stage, pre-tests and post-tests will be conducted to measure the impact of the application on students' character development, particularly in understanding local wisdom values.

The results from the trials will be analyzed using statistical methods to assess significant changes in students' character formation. The refined application will then be distributed more widely to schools in East Java, accompanied by user guides and teacher training. With this approach, it is hoped that the developed mobile application will serve as an effective medium in strengthening students' cultural identity and enhancing character education amid the challenges of globalization.

## **RESULTS AND DISCUSSION**

### **Results**

The following are the results of the research for the development of a mobile application for character education based on local wisdom in East Java:

#### **User Needs Analysis**

This research began with a user needs analysis through literature studies, in-depth interviews, and the distribution of questionnaires to teachers, students, and parents in several schools in East Java. The results of the needs analysis revealed that most teachers felt there was a gap in learning materials related to character values based on local wisdom. A survey conducted among 150 teachers and 300 students found that 85% of teachers and 78% of students agreed that character education utilizing local cultural values could enhance students' understanding of cultural identity and strengthen their sense of love for their homeland.

Teachers also expressed that they often face challenges in integrating local values into the learning process due to limited resources and media. Additionally, interviews with several parents revealed that they desired education that instills moral and cultural values in their children, especially amid the growing influence of globalization. Based on these findings, the development of a mobile application focusing on character education based on local wisdom was considered a potential solution to address these needs.

### **Design and Development of the Application**

After conducting the needs analysis, the next step was the design and development of the application. The application was developed by considering key features based on feedback from teachers, students, and education experts. The main features integrated into the application include interactive learning materials about East Java's local wisdom, educational quizzes, folk tales presented in animation, and traditional story-based games. The user interface (UI/UX) design was done iteratively, focusing on ease of use and interactivity.

After the initial development phase, the application underwent alpha testing by the development team to ensure stability and smooth basic functionality. Subsequently, beta testing was conducted in three schools in East Java, involving 50 students and 10 teachers. During beta testing, feedback was collected regarding user experience, feature usability, and content relevance. The beta test results showed that 92% of students found the application's interface easy to use and engaging, while 87% of teachers rated the content as suitable for character education based on local wisdom.

### **Effectiveness Testing of the Application (Field Testing)**

After receiving feedback from the beta testing phase, the application was then field-tested. The trial was conducted over four weeks, involving 120 seventh-grade students from three schools in East Java. Prior to using the application, a pre-test was administered to measure students' understanding of local wisdom values. The pre-test results showed that the average understanding score of students was 65%. After using the application for learning, a post-test

was conducted, showing an average score increase to 82%. This improvement of 17% indicates a positive impact of the application on students' understanding of local wisdom.

To evaluate the significance of this improvement, statistical analysis using a paired t-test was conducted. The statistical test results showed a p-value smaller than 0.05, indicating that the increase in students' understanding of local wisdom values after using the application is statistically significant. Therefore, it can be concluded that this mobile application is effective in supporting character education based on local wisdom.

### **User Satisfaction Evaluation**

In addition to quantitative measurements, this study also assessed user satisfaction with the developed application. After the trial period, data was collected through a user satisfaction questionnaire filled out by students and teachers. Based on the data analysis, 88% of students reported being more interested in learning about local cultural values through the application compared to conventional learning methods. Teachers also stated that the application helped them deliver character education materials in a more interactive and engaging way.

However, some users provided feedback on technical issues that need improvement, such as slow loading speed and minor bugs encountered during application use. Users also suggested adding features like the integration of educational video content and interactive discussion features to increase student engagement in learning. These findings will serve as the basis for further improvements to the application before broader implementation.

### **Impact Analysis on Character Education**

This study not only measures students' understanding of local wisdom but also examines the application's impact on changes in students' attitudes and behavior concerning character values such as honesty, responsibility, and cooperation. Through classroom observations and interviews with teachers during the trial, it was found that about 70% of students showed positive changes in their attitudes toward peers and teachers, especially in terms of group cooperation and initiative to behave

honestly. Teachers reported an increase in student participation during learning activities that used the application.

### **CONCLUSION**

This study demonstrates that mobile applications incorporating East Java's local wisdom can effectively enhance character education by deepening students' understanding of cultural values and fostering national pride. The improvement in students' comprehension scores, along with positive behavioral changes in areas such as cooperation, honesty, and responsibility, indicates the app's success in instilling character values. Teachers also noted that the app made character education more engaging and interactive compared to traditional teaching methods. Although some technical issues, such as slow loading times and occasional bugs, were identified, the overall findings underscore the app's potential to enrich learning experiences and preserve local culture. As a result, this study presents the app as a promising model for broader implementation in Indonesia and a meaningful contribution to culturally-based character education in the future.

### **Recommendations**

Based on the results of this study, it is concluded that the mobile application based on local wisdom is effective in supporting character education in schools in East Java. This application not only serves as a learning tool but also as a medium for preserving local cultural values for the younger generation. The study recommends broader implementation in schools with support for teacher training to maximize the use of the application. Additionally, the study also suggests further development by adding new interactive features, such as augmented reality (AR)-based learning modules and gamification features that can enhance student engagement.

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