

Ethno-Edutainment Electronic Module (EMEE) to Strengthen Local Cultural Character in Elementary School Students

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Abstract

The erosion of local cultural values due to globalization poses a significant challenge to the development of character in Indonesian students, who are expected to uphold tolerance, ethics, and mutual respect. Objective: This study aims to develop an Android-based ethnoedutainment electronic module to strengthen local cultural character among elementary school students. Novelty: The module integrates ethno-edutainment and local cultural values into a digital learning platform, offering an innovative approach to character education. Methods: The module was developed using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation) within a Research and Development (R&D) framework. The product was validated by media, content, and language experts, and tested on 55 students at Pondok Bambu 06 Duren Sawit State Elementary School, East Jakarta. Results: The validation results showed that the module was categorized as "very good" across all aspects. The practicality test revealed positive student responses, and the effectiveness test demonstrated a significant improvement in learning outcomes, with an average pre-test score of 70.54 and a post-test score of 87.45. Conclusion: The module is effective in supporting character education, with interactive features and local cultural content that enhance student engagement and strengthen their national identity.

Keywords: Ethno-Edutainment, Local Culture, Character Education, Android-Based Learning, Elementary Students.

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INTRODUCTION

Culture is a crucial aspect of a nation, encompassing ways of life, values, knowledge, and traditions inherited from generation to generation. Indonesian society has long upheld moral values, ethics, mutual cooperation, friendliness, and tolerance, which support harmonious coexistence among diverse groups. However, in the globalization era, foreign cultural influences have become increasingly accessible and widely adopted, leading to significant behavioral changes in society. Modernization has impacted people's moral values, attitudes, and personalities (Suryana & Dewi, 2021). The dominance of foreign cultures has contributed to the erosion of local cultural values and the shifting of moral and character values (Budiarto, 2020), resulting in cultural challenges (Aprianti et al., 2022) and posing a threat to national identity (Alfiana & Najicha, 2022).

Recent studies show that social media greatly affects the cultural identity of the millennial generation, encouraging the use of foreign languages and fashion trends while weakening traditional values (Andhini & Ramadhan, 2023). Hence, revitalizing and internalizing local cultural values through educational and social initiatives is becoming increasingly urgent (Savitri et al., 2024a). In Jakarta, a city undergoing rapid urbanization, the decline in students' moral and cultural values is more significant, driven by the widespread influence of foreign cultures and social media (Pujasmara et al., 2022)

Today's generation, especially in urban areas, is gradually forgetting national identity. Foreign cultures are more favored in daily interactions, moral values are declining, ethical norms are considered outdated, and empathy and tolerance are limited to theory. As a result, concern for national values is diminishing (Pujasmara et al., 2022) This condition is increasingly driven by the rise of social media and global content, which shape youth behavior and weaken their cultural identity (Savitri et al., 2024b). To address this character crisis, support from various sectors is needed. Although the education sector has taken steps to address cultural decline amidst globalization, the challenges remain immense. Applying Pancasila values in education becomes one of the essential strategies to foster a sense of nationalism among young people (Suwandi & Dewi, 2022). Studies have shown that integrating Pancasila values into the curriculum significantly contributes to character building and strengthening national identity (Aziz, 2024; Riyanti et al., 2020)

These findings are supported by observations and interviews conducted with teachers and students at Pondok Bambu 06 State Elementary School in East Jakarta. The results regarding local cultural awareness show that: (1) some students are still unaware of local culture; (2) several students do not yet show acceptance of cultural differences; (3) many students are more familiar with and tend to follow foreign cultural trends; (4) teachers find it difficult to integrate local culture into enjoyable learning materials; and (5) local cultural values are still underrepresented in classroom learning. This highlights the pressing need for more effective and engaging educational tools that introduce and reinforce local cultural values.

Character education plays a vital role in shaping a generation with a spirit of nationalism in the face of globalization. Through character education, noble values such as love for the homeland, collaboration, and integrity can be instilled from an early age, enabling the younger generation to face global challenges without losing their national identity (Maulani et al., 2024), This approach is crucial in shaping individuals who are not only competent but also morally upright (Humaeroh & Dewi, 2021). The integration of character education into the curriculum has been shown to foster students' moral development and social behavior, ultimately improving the nation's moral fabric (Susilo et al., 2022). Moreover, incorporating nationalism values through history learning has proven effective in increasing students' sense of national pride and identity.

Based on needs analysis observations at Pondok Bambu 06 Public Elementary School, the researchers proposed the development of an electronic module for Pancasila and Civic

Education that can assist both teachers and students in the learning process in and outside the classroom. These electronic modules aim to introduce students to local culture, promoting moral and ethical values, mutual cooperation, friendliness, and tolerance without discrimination based on religion, ethnicity, or group. These values are implemented through student behavior and serve as the foundation for character education (Setiawati & Sumiyatun, 2024). Therefore, a serious and consistent effort in character education is necessary to cultivate a generation that upholds national values and ethics.

The development of e-modules that integrate local culture (ethno) and are presented in a fun and engaging manner (edutainment) offers an innovative learning approach. This method, known as ethno-edutainment, connects real-life conditions in students' environments with learning materials, resulting in more meaningful learning experiences. Research indicates that culture-based learning delivered in an enjoyable way can strengthen the sense of nationalism in elementary students. The development of Ethno-STEM-based e-modules under the Merdeka Curriculum has also proven to be valid and practical, offering engaging and easily understood learning materials (Sunedi & Syaflin, 2024). Furthermore, implementing ethnoscience-based smart modules has improved students' patriotism by deepening their understanding of local culture (Ardianti et al., 2023), while the integration of Ethno-STEM in project-based learning enhances students' scientific literacy and appreciation of indigenous knowledge (Sumarni et al., 2023).

This study supports the strategic plan of higher education research in the theme of excellence in educational technology. In terms of educational technology, this research aims to develop an Ethno-Edutainment Electronic Module (EMEE). The issues to be investigated are:

- (1) How is the development of the Ethno-Edutainment Electronic Module (EMEE) at Pondok Bambu 06 Public Elementary School, East Jakarta?
- (2) How is the design of the electronic module of ethno-edutainment (EMEE) at Pondok Bambu 06 Public Elementary School, Duren Sawit, East Jakarta, Jakarta Province?
- (3) What is the effectiveness of the Ethno-Edutainment Electronic Module (EMEE) in strengthening students' local cultural character at Pondok Bambu 06 Public Elementary School, East Jakarta?

Several recent international studies have investigated the development of e-modules based on local wisdom (ethno-edutainment) to enhance learning quality and conceptual understanding in elementary students. For example, research by Ardianti & Wanabuliandari (2021) developed a digital ethno-edutainment module that improved students' conceptual understanding, with 25% showing high and 62.5% moderate improvement. Azmi Zakiyah (2022) created an Ethno-STEM-based e-module integrating science, technology, engineering, and mathematics with ethnoscience, which received positive student responses and was effective in developing 21st-century skills. Another study by Tamba et al. (2022) developed an e-module on basic teaching skills based on local wisdom using the 4-D model for hybrid learning Faisal et al. (2021) also created a local-culture-based e-module for Indonesian language and literature appreciation in North Sumatra, which proved highly valid, practical, and effective, with a 90% student success rate.

These findings show that e-modules based on local wisdom can improve elementary students' conceptual understanding and skills. However, most previous research has not focused on urban settings like Jakarta, where the challenge of preserving local culture is more significant. This study offers novelty by focusing on the development of an Android-based ethno-edutainment e-module, equipped with discussion features for teachers and students and engaging visuals. This product is expected to strengthen local cultural character in urban elementary school students.

METHODS

This study uses the Research and Development (R&D) method, specifically employing the ADDIE development model, which includes five main stages: Analysis, Design, Development, Implementation, and Evaluation. The study integrates a quantitative approach in the form of a quasi-experimental one-group pretest-posttest design to measure the effectiveness of the developed product.

The research was conducted at Pondok Bambu 06 State Elementary School in Duren Sawit District, East Jakarta, involving all fourth-grade students as the study population. Using purposive sampling to ensure the cultural material's relevance to the local context, a total of 55 students were selected as the sample. This included 6 students (3 from Class IV A and 3 from Class IV B) for the small group trial, and 49 students (24 from Class IV A and 25 from Class IV B) for the large group trial.

The analysis stage involved a series of preparatory procedures aimed at understanding the learning context and needs. The researcher analyzed students' needs and identified learning problems, reviewed the existing curriculum, and determined the appropriate types of learning media to support the integration of ethno-edutainment in the classroom.

During the design stage, the researcher developed a comprehensive plan for the electronic module. This included preparing flowcharts, organizing the content structure and interface, and selecting relevant ethnocultural materials that were suitable for elementary school students, ensuring both educational and cultural appropriateness.

The development stage focused on producing the electronic module based on the initial design. This process included preparing the learning materials, developing the module itself, and conducting internal testing through self-evaluation. Furthermore, expert validation was carried out involving media, content, and language experts to ensure the quality and accuracy of the product.

Following expert revisions, the implementation stage was conducted in two phases. A small group trial involving six students was used to evaluate initial responses and usability. Subsequently, a large group trial with 49 students was implemented to assess the module's feasibility and to gather broader student feedback.

In the evaluation stage, the effectiveness of the electronic module was assessed using a one-group pretest-posttest design. This method allowed for a comparison of student learning outcomes before and after the use of the product, providing insights into its impact on student understanding and engagement.

Pre-test	Treatment	Post-tets		
01	X	02		

Description

01 = Pretest

X = Treatment

02 = Posttest

Data Collection and Analysis Instruments

Data were collected using both test and non-test instruments.

The test data were collected through pretests and posttests to evaluate students' learning outcomes. Several statistical procedures were applied in the analysis. First, a normality test using the Kolmogorov-Smirnov method was conducted, with data considered normally distributed if the significance value (Sig.) exceeded 0.05. Next, a homogeneity test was

performed to assess the similarity of variances, with data deemed homogeneous under the same significance criterion. Finally, a paired sample t-test was used to determine whether there were significant differences in learning outcomes before and after the implementation of the learning module.

$$t = \frac{\overline{x} - \mu_0}{s}$$

Where:

t = Calculated t value

x = Average pretest

 $\mu 0 = Average posttest$

S = Standard deviation of the difference between measurements 1 and 2

N = Sample size

Non-test instruments were employed to gather qualitative data supporting the study. An observation sheet was used to monitor students' attitudes and behaviors related to cultural values during learning activities. Interviews were conducted with teachers and students to gain deeper insights into their understanding of local culture. Additionally, questionnaires were administered for expert validation—covering media, content, and language aspects—and to assess student responses during small and large group trials. All questionnaire responses were measured using a five-point Likert scale.

	Table 1 Likert Scale					
No.	Category	Score				
1.	Very Good	5				
2.	Good	4				
3.	Fair	3				
4.	Poor	2				
5	Very Poor	1				

Average score formula:

$$\bar{x} = \frac{\sum x}{n}$$

Where:

 \overline{x} = Average score of the aspect

 $\sum x$ = Total average score of the indicator

 \overline{n} = number of questions

In the development of success criteria into interval-scaled data as follows:

Table 2 Success Criteria				
Score	Description			
4.55-5.00	Very Good			
4.00-4.54	Good			
2.55-3.99	Fair			
1.00-2.54	Poor			
0.00-0.99	Very Poor			

A minimum average score of **4.00** (Good) is required for the module to be considered valid and feasible.

RESULTS AND DISCUSSION

Analysis

The needs analysis in the research and development of the ethno-edutainment electronic module was carried out through interviews with teachers and students, as well as direct observation of challenges and learning needs in Pancasila and Civic Education. This analysis covers the following components::

- Student Needs, Curriculum, and Learning Media Analysis: Students require more varied and interactive learning media compared to the conventional ones such as textbooks, posters, pictures, and projectors.
- (2) Curriculum analysis

The curriculum serves as a reference for determining learning indicators. The applied curriculum refers to the Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 958/P/2020 concerning learning outcomes in Early Childhood, Primary, and Secondary Education. The competency units that will be developed in the electronic module are listed in Table 3:

		and the second	
No	Unit	Learning materials	Learning Material Objectives
1 Building Identity in Diversity		Identify cultural diversity in the surrounding environment	Students can get to know and understand cultural diversity in their surrounding environment.
		Respecting cultural diversity in an environment	Students can appreciate diversity through an attitude of loving others and their environment.
		Understanding examples of behavior that respects cultural diversity	Students understand examples of attitudes and behavior that respect cultural diversity
		Attitudes and behaviors that maintain and damage diversity	Students can provide examples of attitudes and behavior that maintain and destroy diversity.

Table 3. Learning Outcomes of PPKn in Grade IV

(3) Learning Media Analysis:

Learning media are selected based on their ability to support learning objectives. From the interviews and observations, it was found that electronic modules are a suitable choice. They are independent learning tools, provide complete learning material, are not dependent on other media, align with technological developments, and are easy to use. The module is developed as an Android-based mobile learning product accessible through smartphones. Students at SD Negeri Pondok Bambu 06 Duren Sawit, East Jakarta, already have access to such devices.

Design

The design of the electronic module was formulated after collecting the required materials, which include illustrations, audio, and video. The overall design is visualized in a flowchart, as shown in Figure 1:

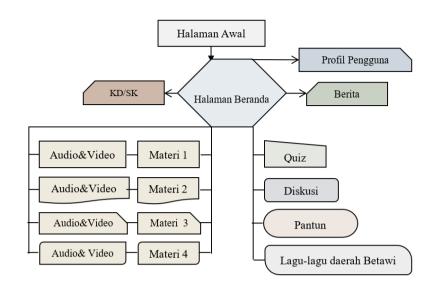
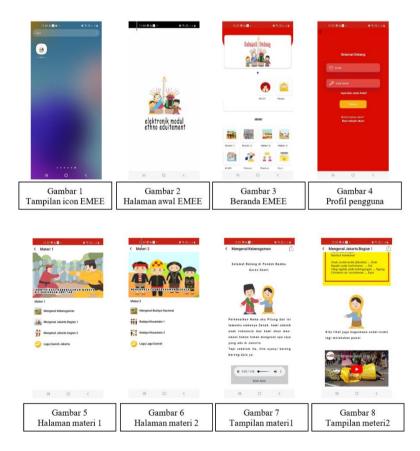


Figure 1. Flowchart of the Ethno-Edutainment Electronic Module to Strengthen Cultural Characte

Development

The development stage includes creating the final version of the electronic ethnoedutainment module aimed at strengthening elementary school students' cultural character. The following sections detail the validation results:



Gambar 9 Halaman materi 1	Gambar 10 Halaman materi 2	Gambar 11 Tampilan Pesan	Gambar 12 Tampilan Diskusi
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The following sections detail the validation results of the Ethno-Edutainment electronic module from three different experts:

1. Media Expert Validation

The media expert provided a comprehensive assessment focusing on visual layout, navigation, animations, and multimedia integration. The total score achieved was 77, with an average of **4.52**, which falls under the "Very Good" category. This indicates that the module is highly effective in terms of visual and technical presentation, making it suitable for student engagement and independent use.

2. Subject Matter Expert Validation

The subject matter expert evaluated the relevance, accuracy, and depth of the content aligned with the curriculum and local wisdom values. The total score achieved was 79, with an average of **4.64**, also categorized as "Very Good." This confirms that the module's content is not only complete and systematically presented, but also strongly aligned with the learning goals of Pancasila and Civic Education for fourth-grade students.

3. Language Expert Validation

The language expert reviewed the appropriateness of the language used for fourth-grade students, considering both intellectual and social development. The total score was 49, with an average of **4.45**, categorized as "Good." This suggests that while the module uses proper and comprehensible language for the target age group, there is still slight room for improvement in linguistic refinement.

These validation results confirm that the Ethno-Edutainment electronic module is Suitable and effective as a learning medium, particularly in supporting cultural character education for elementary students. The following is a graph of the validation results of the Ethno-Edutainment electronic module based on assessments from three experts:

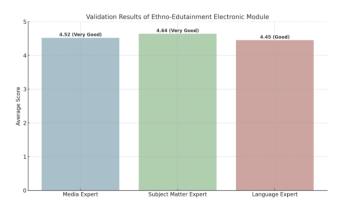


Figure 2 : Bar Graph Of Expert Validation Result

Implementation **Small Group Testing**

Small group testing is conducted after the product is deemed feasible by experts. This testing involves 6 students and is performed to assess the usability of the product from the perspective of users, in this case, fourth-grade students from SD Negeri Pondok Bambu 06 Duren Sawit, East Jakarta, Jakarta Province. The results are as follows:

Table 4 Small Group Testing					
Aspect	Total Score	Number of Items			
Ease of Use	140	5			
Appearance Aspect	274	10			
Content Quality	84	3			
Total	498	18			
Average	4,61				
Criteria	Very Good				

Based on the table from the small group test conducted by 6 students, an average score of 4.61 was obtained. Looking at the success criteria table, the ethno-edutainment electronic module for strengthening cultural character is categorized as "Very Good." This indicates that a majority of students do not have difficulties in using the ethno-edutainment electronic module.

Large Group Trial

The large group trial was conducted by all students of class IV A and IV B at Pondok Bambu 06 Public Elementary School, Duren Sawit, East Jakarta, Jakarta Province, with a total of 49 students. The results are as follows:

Table 5 Large Group Trial						
Aspect	Total Score	Number of Items				
Ease of Use	1124	5				
Aspect of Appearance	2248	10				
Content Quality	669	3				
Total	4041	18				
Average		4,58				
Criteria	V	ery Good				

Based on the table from the large group test conducted with 49 students, an average score of 4.58 was obtained. Referring to the success criteria table, the electronic ethno-edutainment module designed to strengthen cultural character is categorized as "Very Good." This indicates that the fourth-grade students of Pondok Bambu 06 Elementary School in Duren Sawit, East Jakarta, Jakarta Province, as users, do not find it difficult to use the electronic ethnoedutainment module.

Evaluation

1) Test

In this stage, the teacher conducts learning according to the Basic Competencies outlined in the developed electronic module on ethno-edutainment. Subsequently, the teacher distributes a pre-test sheet to measure the students' knowledge and understanding of the material. Based on the results of the pre-test conducted by the students, the average score obtained was 70.54, which is still far from the predetermined minimum completeness criteria of 87.45. After assessing the students' abilities, the teacher proceeds with the learning using the electronic

ethno-edutainment module and then distributes a post-test sheet. The results can be seen in Figure 14 as follows:

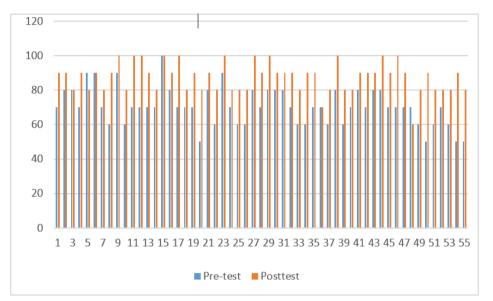


Figure 3. The results Pre-test andPostest

Effectiveness Test

Before conducting the hypothesis test for the difference in means (t-test), a prerequisite analysis of the data is performed, which includes normality testing and homogeneity testing, so that the effectiveness of the data can be tested using the t-test. Below are the results of the normality test, homogeneity test, and the difference in means test (t-test):

		Unstandardized Residual
N		55
Normal Parameters ^{a,b}	Mean	,0000000
	Std. Deviation	7,75124783
Most Extreme Differences	Absolute	,114
	Positive	,107
	Negative	-,114
Test Statistic		,114
Asymp. Sig. (2-tailed)		,071°

Table 6 One-Sample Kolmogorov-Smirnov Test

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Based on the results of the normality test above, the Asymp sig. (2-tailed) value is 0.71 or the p-value is 0.71 > 0.05, thus the data is normally distributed. Next, the results of the homogeneity test can be seen as follows:

		Levene Statistic	df1	df2	Sig.
Hasil Belajar PKn	Based on Mean	,038	1	53	,847
	Based on Median	,020	1	53	,887
	Based on Median and with adjusted df	,020	1	45,885	,888
	Based on trimmed mean	,006	1	53	,938

Table 7: Test of Homogeneity of Variances

Based on the results of the homogeneous test above, in the "based on mean" row, the column sig. is 0.846, or the p-value is 0.847, which is greater than 0.05, thus the test results can be considered homogeneous. Next, a t-test was conducted, and the results can be seen as follows:

	Table 8: Paired Samples Statistics								
			Mean	Ν	Std. Devia	tion	Std. Error	Mean	n
	Pair 1	Pre-tes	70,5455	55	10,95752		1,47751		
		postes	87,4545	55	8,65345		1,16683		
Paired S	amples T	est							
									Sig. (2-
		Paired	Differences				t	df	tailed)
			Std.	Std.	95%	Confidence	e		
			Deviatio	Error	Interval	of th	e		
			n	Mean	Difference				
		Mean			Lower	Upper			
Pair 1	Pre-tes	16,909	09 10,5185	1,41832	-19,75265	-14,06553	3 -	54	,000
	postes		4				11,922		

Based on the calculations in the Paired Samples Statistics table, the average learning outcome before using the ethno-edutainment electronic module in the pre-test row was 70.545, while after the students used the ethno-edutainment electronic module, the post-test average was 87.45. This descriptively indicates a difference in the average learning outcomes before and after using the ethno-edutainment electronic module. Meanwhile, in the Paired Samples Test table, the significance value or p-value of 0.000 < 0.05 means that the alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected. Therefore, it can be concluded that there is a significant difference in learning outcomes before and after using the ethno-edutainment electronic module for use and recommended as a learning media that provides a new experience to create an effective and enjoyable learning environment.

2) Non Test

The application of cultural character values is not only viewed from the cognitive aspect of students but also from how students interact during the learning process using the electronic ethno-edutainment module. In the affective domain, assessment is conducted through observation sheets, while the evaluation of student attitudes is divided into two: spiritual attitude and social attitude. Assessment through observation during the learning process using the electronic ethno-edutainment module includes creating observation sheets and important notes. In terms of assessing spiritual attitudes, students show readiness to start activities and reverence during prayer, while the assessment of social attitudes shows that all students respect the teacher, value others' opinions, and express appreciation. During recess, students gather together without distinguishing between ethnic groups, singing regional songs available in the electronic ethno-edutainment module, sharing food, and lining up when buying snacks at the school canteen behaviors that were not observed previously.

This study highlights the integration of edutainment for character education through an interactive, real-time discussion-based module. Unlike Tamba et al. (2022), who focused on local wisdom-based hybrid learning, our approach centers on real-time interaction, making it more suitable for the digital generation. Our results showed that students were more engaged and retained educational content better compared to traditional e-learning modules. This aligns with, multimedia learning principles, which emphasize the role of interactivity and engaging visuals in enhancing student participation.

This study had several limitations: (1) the small sample size from one urban school, (2) the absence of long-term measurements on character formation, and (3) the subjectivity of teacher observations without inter-rater reliability testing.

Students exhibited increased collaboration, such as singing regional songs together during breaks a behavior that wasn't observed prior to the intervention. This change reflects the module's emphasis on cultural diversity, supporting the effectiveness of edutainment in promoting social values.

The design elements of the module bright colors, gamified quizzes, and real-time discussions were key to its success. These features were grounded in multimedia learning theory, and contributed to student engagement, making the learning experience more interactive and effective.

CONCLUSION

This study successfully developed the Ethno Edutainment Electronic Module (EMEE) using the ADDIE model to strengthen the local cultural character of elementary school students. The EMEE, which includes interactive quizzes and cultural videos, was found to be effective in enhancing students' understanding of local culture (Objective 1). The module's design, which prioritizes user-friendly navigation, engaging content, and a bright color scheme, was validated by experts, with ratings ranging from 4.45 to 4.64 (Objective 2). Additionally, the EMEE significantly improved cultural awareness and character development, as evidenced by a 16.9-point increase in post-test scores (p<0.05), demonstrating its effectiveness in achieving the educational goals (Objective 3).

The findings suggest that the EMEE is an effective tool for promoting local cultural knowledge and fostering positive character traits. Teachers reported that students exhibited more respectful interactions, demonstrated moral values such as kindness and tolerance, and showed improved cultural sensitivity during group activities, further confirming the module's success in nurturing good character.

Future research should explore the application of the EMEE in diverse educational settings, including rural schools and various grade levels, to enhance the generalizability of the findings. Longitudinal studies could provide insights into the long-term impact of the EMEE on character development. Additionally, exploring teacher training models to support the effective implementation of the module would be valuable.

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