

Research Article

# Development of E-Modules Containing Mutual Cooperation Characters on the Theme of Local Wisdom in Elementary Schools

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**Abstract:** Character education, especially in the context of the Independent Curriculum and the Pancasila Student Profile (P5), is an important aspect in forming a competent and characterful generation. One of the core values that needs to be instilled is mutual cooperation, which reflects the spirit of cooperation and social solidarity in Indonesian culture. However, the integration of mutual cooperation values in learning in elementary schools faces challenges, especially related to the limited availability of effective teaching materials. This study aims to develop an e-module based on local wisdom that integrates mutual cooperation values. The main focus of this study is to assess the validity or feasibility of the e-module developed in supporting interactive and relevant project-based learning. The method used is Research and Development (R&D) with the ADDIE model (Analyze, Design, Development, Implementation, and Evaluation). Data collection in this study used a Likert scale. This study produced an e-module that integrates the value of mutual cooperation on the theme of local wisdom in Elementary Schools. Based on the evaluation conducted, this e-module shows good feasibility, in the assessment aspect of the module shows a level of interest of 94% and practicality of 89%, confirming that this module is relevant, interesting, and easy to use in character-based learning.

**Keywords:** Character Education; E-Module; Local Wisdom.

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## 1. Introduction

Character education is very important in the Indonesian education system, especially in the context of the Independent Curriculum and the implementation of the Pancasila Student Profile (P5). The Independent Curriculum prioritizes the development of student character based on Pancasila values, such as mutual cooperation, as a foundation for creating a competent and characterful generation. The value of mutual cooperation is one of the core elements in shaping students' personalities in accordance with the ideals of the Indonesian nation. By emphasizing character, the Independent Curriculum aims to build a generation that is not only intellectually intelligent, but also has high moral and social integrity, so that they become responsible citizens. Data from the Ministry of Education and Culture (2021) shows that character education is a component that must be instilled from an early age to form a generation that is able to adapt to social, cultural, and technological dynamics.

Mutual cooperation is a value that is deeply embedded in Indonesian culture, reflecting the spirit of togetherness, mutual assistance, and social solidarity. Since ancient times, mutual cooperation has been a part of Indonesian society in facing various challenges, both in joint work, natural disasters, and social activities. Therefore, it is very important to teach the value

of mutual cooperation to the younger generation from an early age. This is in line with research conducted by Suyatno (2019), which states that mutual cooperation is not only a social value, but also part of the nation's cultural identity that must be preserved. Instilling this value through formal education can strengthen the sense of togetherness and strengthen social ties in society.

Although important, integrating character education, especially the value of mutual cooperation, into learning in elementary schools faces several challenges. One of the obstacles is the lack of effective and relevant teaching materials in conveying these values. Existing learning modules are often inadequate to accommodate the needs of teaching mutual cooperation values optimally. Hidayati (2020) stated that teaching materials in schools are often not in-depth enough to cover local aspects that support character teaching. For this reason, innovation is needed in developing teaching materials that are more contextual and in accordance with the social and cultural conditions of students. Thus, character education can be better accepted and in accordance with the values that exist in society.

Local wisdom plays a very important role in strengthening the value of mutual cooperation among students. Local wisdom includes traditions, cultures, and social practices that have been inherited from ancestors and have positive values that are relevant to everyday life. Integration of local wisdom in learning can provide students with a deeper understanding of mutual cooperation, not only as an abstract concept, but also as a real action that exists in their lives. Rahmawati (2018) explains that local wisdom can be a rich resource for instilling social values, such as cooperation and solidarity, which can support the development of students' character. Therefore, it is important for educators to introduce local wisdom as part of character learning.

Along with the development of technology, innovation in learning has become an urgent need. The use of technology-based e-modules is one solution to increase the effectiveness of character learning. E-modules can present material interactively, interestingly, and can be easily accessed by students in various places. Putra (2021) added that e-modules not only provide ease of access, but also support the process of internalizing character values such as mutual cooperation through more interesting media and in accordance with the tendencies of students who are more accustomed to technology. This allows teaching the value of mutual cooperation to be more effective and enjoyable for students.

The development of e-modules containing the values of mutual cooperation based on local wisdom is a strategic step in strengthening character education in elementary schools. By integrating local wisdom, e-modules not only convey the values of mutual cooperation theoretically, but also show their application in the context of students' daily lives. This will help students understand the relevance of the values of mutual cooperation in their lives, as well as connect learning with real experiences. The objectives of the Independent Curriculum and the Pancasila Student Profile will be more easily achieved through the development of e-modules like this, which also support students' achievement of social competence and strengthen their sense of nationalism.

In the digital era, technology integration in education is essential to improve the quality of learning. However, one of the main problems is the lack of digital-based teaching materials that can effectively integrate the values of mutual cooperation and local wisdom. Suyatno (2019) stated that existing digital teaching materials are often unable to convey the values of mutual cooperation in an effective way, even though this value is an inseparable part of Indonesian culture that must be passed on to the younger generation. Local wisdom also plays an important role in shaping students' character, but is often not accommodated in existing digital teaching materials.

In addition, existing learning media are often not capable of actively involving students in the character building process. Interactive and participatory learning is very important for internalizing character values, including mutual cooperation. Hidayati (2020) emphasized the importance of learning that actively involves students so that character values can be deeply embedded. However, the limitations of available learning media are an obstacle in achieving this goal. More creative and innovative learning is needed to overcome this obstacle.

Teachers also face challenges in finding practical and relevant teaching materials to support project-based learning. Project-based learning requires teaching materials that are applicable and appropriate to the local context, which can help students understand the application

of character values in real life. Putra (2021) explains that without appropriate teaching materials, project-based learning will not be effective in achieving the desired goals. Therefore, it is important to develop teaching materials that are not only informative but also relevant to the local context and support project-based learning.

The development of e-modules that integrate the values of mutual cooperation and local wisdom is a much-needed solution to overcome problems in learning in elementary schools. This e-module is expected to be an interactive learning medium, which can actively involve students in the learning process. Thus, students can more easily understand and internalize character values, especially mutual cooperation, which are very important for their lives and society. This technology-based e-module can also support teachers in implementing project-based learning that is more effective and meaningful for students, in accordance with the objectives of the Merdeka Curriculum and the Pancasila Student Profile.

## 2. Literature Review

Character education has become a major focus in the national education system, especially in the implementation of the Independent Curriculum and the Pancasila Student Profile (P5). The core values of Pancasila such as mutual cooperation are raised as the foundation in forming students with strong character and moral integrity. Mutual cooperation, as an Indonesian cultural value that has been passed down from generation to generation, contains the meaning of cooperation, mutual assistance, and social solidarity which are important to be taught since elementary education (Suyatno, 2019).

However, the integration of these character values in the learning process faces challenges, especially due to the limited learning media that can convey character messages effectively. Hidayati (2020) emphasized that most of the available teaching materials are still unable to cover local aspects in depth, so it is necessary to develop teaching materials that are more contextual and relevant to students' lives.

Local wisdom as part of regional culture has great potential in supporting the strengthening of students' character. Rahmawati (2018) shows that local wisdom such as traditions, traditional ceremonies, and social practices are effective means to instill social values, including mutual cooperation. By linking learning to the local cultural context, students can understand the meaning of character not only theoretically, but also in everyday practice.

The development of digital technology provides a great opportunity for education to create more innovative and interesting learning media. E-modules as a form of digital media offer flexibility and ease of access that can support the process of internalizing character values in students. According to Putra (2021), the use of e-modules not only increases students' interest in learning, but also helps convey the value of mutual cooperation with an approach that is more relevant to the learning style of today's digital generation.

In addition, learning designs that involve collaborative and interactive activities, such as in project-based learning, have been shown to increase student engagement and understanding of character values. Zhang et al. (2023) emphasized the importance of an activity-based approach in strengthening students' morals and character, especially when the learning context is linked to real-life values.

Alharbi and Drew (2021) in their review of interactive multimedia in digital education stated that multimedia elements such as video, animation, and simulation can significantly increase students' motivation and learning experience. In the context of e-module development, the use of these elements will greatly support the delivery of the message of mutual cooperation values in a more interesting and meaningful way.

Finally, the success of implementing digital media in education is also greatly influenced by aspects of infrastructure and technological support in schools. Anderson et al. (2022) emphasize that infrastructure challenges must be taken into account in designing digital learning products so that they can be optimally accessed by teachers and students in various conditions.

Thus, this literature review supports the importance of developing e-modules containing local wisdom-based mutual cooperation character values as a strategy to overcome the challenges of character learning in elementary schools. This approach not only enriches learning content, but also strengthens the connection between cultural values and character education in the context of Indonesian education based on Pancasila.

### 3. Research Method

This research is a development research ( Research & Development ). Development research is a process used to develop and validate educational products. This research was conducted on 3 elementary school teachers who were used as research respondents. Sampling using total sampling, namely grade 5 teachers at Al-Amanah Elementary School, the target of the research in South Tangerang. This research was conducted to develop an e-module containing the character of mutual cooperation on the theme of local wisdom. The development model used is the ADDIE model ( Analyze, Design, Development, Implementation, and Evaluation ) as a reference in this study.

Character education is very important in the Indonesian education system, especially in the context of the Independent Curriculum and the implementation of the Pancasila Student Profile (P5). The Independent Curriculum prioritizes the development of student character based on Pancasila values, such as mutual cooperation, as a foundation for creating a competent and characterful generation. The value of mutual cooperation is one of the core elements in shaping students' personalities in accordance with the ideals of the Indonesian nation. By emphasizing character, the Independent Curriculum aims to build a generation that is not only intellectually intelligent, but also has high moral and social integrity, so that they become responsible citizens. Data from the Ministry of Education and Culture (2021) shows that character education is a component that must be instilled from an early age to form a generation that is able to adapt to social, cultural, and technological dynamics.

Mutual cooperation is a value that is deeply embedded in Indonesian culture, reflecting the spirit of togetherness, mutual assistance, and social solidarity. Since ancient times, mutual cooperation has been a part of Indonesian society in facing various challenges, both in joint work, natural disasters, and social activities. Therefore, it is very important to teach the value of mutual cooperation to the younger generation from an early age. This is in line with research conducted by Suyatno (2019), which states that mutual cooperation is not only a social value, but also part of the nation's cultural identity that must be preserved. Instilling this value through formal education can strengthen the sense of togetherness and strengthen social ties in society.

Although important, integrating character education, especially the value of mutual cooperation, into learning in elementary schools faces several challenges. One of the obstacles is the lack of effective and relevant teaching materials in conveying these values. Existing learning modules are often inadequate to accommodate the needs of teaching mutual cooperation values optimally. Hidayati (2020) stated that teaching materials in schools are often not in-depth enough to cover local aspects that support character teaching. For this reason, innovation is needed in developing teaching materials that are more contextual and in accordance with the social and cultural conditions of students. Thus, character education can be better accepted and in accordance with the values that exist in society.

Local wisdom plays a very important role in strengthening the value of mutual cooperation among students. Local wisdom includes traditions, cultures, and social practices that have been inherited from ancestors and have positive values that are relevant to everyday life. Integration of local wisdom in learning can provide students with a deeper understanding of mutual cooperation, not only as an abstract concept, but also as a real action that exists in their lives. Rahmawati (2018) explains that local wisdom can be a rich resource for instilling social values, such as cooperation and solidarity, which can support the development of students' character. Therefore, it is important for educators to introduce local wisdom as part of character learning.

Along with the development of technology, innovation in learning has become an urgent need. The use of technology-based e-modules is one solution to increase the effectiveness of character learning. E-modules can present material interactively, interestingly, and can be easily accessed by students in various places. Putra (2021) added that e-modules not only provide ease of access, but also support the process of internalizing character values such as mutual cooperation through more interesting media and in accordance with the tendencies of students who are more accustomed to technology. This allows teaching the value of mutual cooperation to be more effective and enjoyable for students.

The development of e-modules containing the values of mutual cooperation based on local wisdom is a strategic step in strengthening character education in elementary schools. By integrating local wisdom, e-modules not only convey the values of mutual cooperation

theoretically, but also show their application in the context of students' daily lives. This will help students understand the relevance of the values of mutual cooperation in their lives, as well as connect learning with real experiences. The objectives of the Independent Curriculum and the Pancasila Student Profile will be more easily achieved through the development of e-modules like this, which also support students' achievement of social competence and strengthen their sense of nationalism.

In the digital era, technology integration in education is essential to improve the quality of learning. However, one of the main problems is the lack of digital-based teaching materials that can effectively integrate the values of mutual cooperation and local wisdom. Suyatno (2019) stated that existing digital teaching materials are often unable to convey the values of mutual cooperation in an effective way, even though this value is an inseparable part of Indonesian culture that must be passed on to the younger generation. Local wisdom also plays an important role in shaping students' character, but is often not accommodated in existing digital teaching materials.

In addition, existing learning media are often not capable of actively involving students in the character building process. Interactive and participatory learning is very important for internalizing character values, including mutual cooperation. Hidayati (2020) emphasized the importance of learning that actively involves students so that character values can be deeply embedded. However, the limitations of available learning media are an obstacle in achieving this goal. More creative and innovative learning is needed to overcome this obstacle.

Teachers also face challenges in finding practical and relevant teaching materials to support project-based learning. Project-based learning requires teaching materials that are applicable and appropriate to the local context, which can help students understand the application of character values in real life. Putra (2021) explains that without appropriate teaching materials, project-based learning will not be effective in achieving the desired goals. Therefore, it is important to develop teaching materials that are not only informative but also relevant to the local context and support project-based learning.

The development of e-modules that integrate the values of mutual cooperation and local wisdom is a much-needed solution to overcome problems in learning in elementary schools. This e-module is expected to be an interactive learning medium, which can actively involve students in the learning process. Thus, students can more easily understand and internalize character values, especially mutual cooperation, which are very important for their lives and society. This technology-based e-module can also support teachers in implementing project-based learning that is more effective and meaningful for students, in accordance with the objectives of the Merdeka Curriculum and the Pancasila Student Profile.

## **4. Research Result**

### **4.1 Analyze Stage**

The Independent Curriculum places the Pancasila Student Profile Strengthening Project (P5) as an important component of thematic learning and places mutual cooperation as its main value. One of the main focuses of the Independent Curriculum is local wisdom-based learning and mutual cooperation character because of its relevance in building national identity and character. The theme "Local Wisdom" is suitable for instilling mutual cooperation values because it reflects the culture and traditions of the local community. Local wisdom, which includes traditions, culture, and noble principles of the local community, is an important source for forming students who are aware of their social environment. The Independent Curriculum emphasizes the importance of improving character education (PPK), with mutual cooperation values that must be instilled from an early age. Mutual cooperation as a form of cooperation and social solidarity is in line with the goals of national education to produce a generation that is not only intellectually intelligent but also moral and has character (Suyadi & Narulita, 2020). Local wisdom is the perfect place to teach students about the importance of working together and collaborating during learning themes. Students are expected to appreciate and preserve local culture by applying these values in everyday life.

The needs analysis was carried out by the research team using interview and survey methods on teachers of SD Al Amanah Tangerang Selatan. The results of the interview obtained the essence that the teacher expressed that interactive digital-based teaching media were needed to attract students' interest and help convey character values. The results are as follows:

**Table 1.** Results of needs analysis interviews

No.	Interview Questions	Teacher Response
	How urgent is it to effectively learn local wisdom today?	It is not entirely important because the students' concern for local wisdom has greatly decreased and printed media is considered less interesting for students.
	What media is desired for local wisdom learning?	Interactive digital media such as modules with videos, images, and collaborative activities are currently more literate for students who are in the digitalization era and are even more literate than their teachers.
	Do students understand the value of mutual cooperation in learning?	Not completely. Many students do not understand the application of mutual cooperation in real life, because students are only equipped to be able to and the values applied tend to be values for competing rather than for working together. Then there is the value that mutual cooperation is incidental and can be transferred or represented.

Based on this, it can be concluded that the main need in learning local wisdom with the character of mutual cooperation is the development of teaching media that is more interactive and relevant to students' current learning styles. The teacher said that the printed media that has been used so far tends to be less interesting for students, so a digital-based e-module is needed that combines text, images, videos, and collaborative activities. Then, the teacher stated that students need a concrete and comprehensive learning context to understand the value of mutual cooperation, such as through case studies, simulations, or group-based activities. In addition, digital learning modules should ideally be in accordance with the Merdeka Curriculum which integrates character education thematically. Thus, e-modules based on local wisdom are considered an effective solution to improve students' understanding while instilling the values of mutual cooperation in everyday life.

Furthermore, the survey results found a summary of the results of the needs analysis, namely:

**Table 2.** Results of needs analysis observations

No.	Interview Questions	Teacher Response
	Curriculum Context	The Independent Curriculum focuses heavily on and emphasizes the importance of character values, including mutual cooperation and local wisdom in PPK.
	Teacher Needs	In this digital era, teachers need various interactive media to increase the effectiveness of learning, especially in dealing with students who are growing and developing in the digital era.

	Student Interests and Preferences	Findings in the field and teacher interviews found that students prefer interactive digital media that involve videos and collaborative activities. So that students' needs can be met in the implementation of holistic learning at school.
	Technology and Infrastructure	Schools have basic technology facilities; students and teachers have access to personal digital devices. Analysis of technology and infrastructure needs shows that the use of e-modules in learning is highly dependent on the availability of digital devices and internet network access.

The results of this 2nd analysis indicate that the creation of an e-module containing the character of mutual cooperation with the theme of local wisdom is very relevant to meet the learning needs in elementary schools. According to the curriculum analysis, this theme is in line with the vision of the Merdeka Curriculum which emphasizes the Pancasila Student Profile Strengthening Project (P5), with mutual cooperation as the main value. The results of interviews with teachers showed that current educational tools, such as printed books, do not attract students' interest well. Teachers need digital-based e-modules that are relevant, interactive, and capable of collaborative and visual activities. Students tend to prefer digital learning over print. They also really like local wisdom-based learning; however, they need a more interesting method to understand the value of mutual cooperation. According to the infrastructure and technology evaluation, most schools have basic devices such as computers and projectors, and students have considerable access to smartphones. However, this e-module is expected to improve students' understanding of the value of local wisdom while instilling the character of mutual cooperation, because limited internet access in some areas is a challenge that needs to be overcome.

#### 4.2 Design Level

The design stage in developing an e-module containing the character of mutual cooperation on the theme of local wisdom in elementary schools includes several systematic steps to produce relevant and quality products. The first step is to prepare a product design by determining the module structure that includes several chapters, such as an introduction to local wisdom and the value of mutual cooperation, collaboration-based activities, case studies, and evaluation and reflection. This structure is designed to be in accordance with the learning objectives of the Merdeka Curriculum which emphasizes strengthening character values. Furthermore, the initial product creation is carried out using design software such as Canva or PowerPoint to produce a visually appealing module, complete with multimedia elements such as videos, animations, and interactive activities (Branch, 2009). Furthermore, a validation instrument is prepared to evaluate the suitability of the content, media quality, interactivity, and practicality. Validators consisting of material experts, media experts, and teachers use a *Likert scale* to assess the feasibility of the module and provide additional input. Revisions are made based on the validation results to improve the e-module to meet effective learning standards (Sugiyono, 2018).

**Table 3.** E-Module Development Design Stage Table

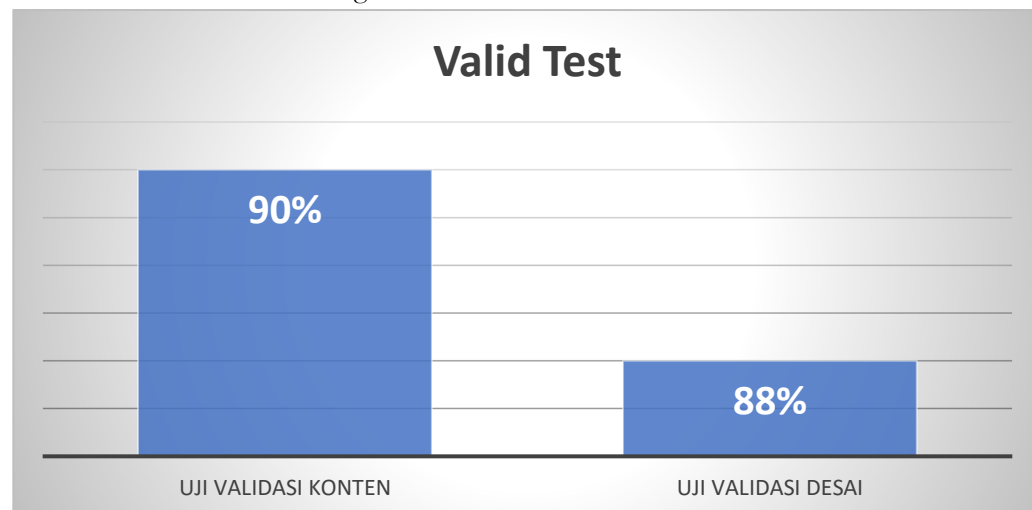
Stages	Main Activities	Output
Product Design	Determine the structure of the e-module: introduction, activities, case studies, and evaluation.	Systematic and thematic e-module structure.

Product Manufactur- ing	Developing e-modules using soft- ware with multimedia elements.	Initial product e-module with interactive features.
Validation Instru- ment	Develop validation question- naires for material experts, media experts, and teachers.	Validation instrument based on <i>Likert scale</i> .

Based on these stages, it shows that the development of e-Modules shows systematic steps consisting of four main stages: compiling product designs, creating initial products, compiling validation instruments, and revising products. Each stage has a clear output, such as the thematic e-module structure at the design stage, initial products with multimedia elements at the creation stage, Likert-based validation instruments at the evaluation stage, to the final e-module that is ready to be tested after revision. This process ensures that the developed e-modules are not only relevant in content, but also visually appealing and practical for use in learning that integrates the value of mutual cooperation on the theme of local wisdom.

### 4.3 Development Stage

The Research & Development (R&D) activities carried out in this study resulted in an e-module product containing the character of mutual cooperation on the theme of local wisdom in Elementary Schools (SD) by considering the assessment criteria for validity, attractiveness, practicality and effectiveness. The assessment of validity is based on content experts and design experts, while the assessment of attractiveness, practicality and effectiveness is based on user assessments during small group and field testing at SD Al Amanah Tangerang Selatan. Based on the assessment of content expert validation on the e-module, it reached a percentage of 90%, and design expert validation reached a percentage of 88%. These results can be seen from the data in Figure 1 below :



**Figure 1.** Validation of Material and Design Experts

Furthermore, testing was conducted in small groups with the aim of testing the e-module and obtaining an assessment of the attractiveness and practicality of the e-module by teachers tested in the field. Based on small group trials, the assessment of the attractiveness by teachers on the teacher e-module reached a percentage of 94%, and the assessment of the practicality by teachers, the teacher e-module reached a percentage of 89%. These results are described in table 4.

**Table 4.** Recapitulation of E-Module Trial

Respondents	Product	Attraction	Practicality
Teacher	Emodul	94%	89%



The results of the teacher's assessment of the e-module containing the character of mutual cooperation show that this module has a very high level of interest, with a percentage of 94%. This indicates that the e-module has succeeded in attracting the attention and interest of teachers to be used in learning, both in terms of visual design, multimedia elements, and interactivity. In addition, the assessment of the practicality of the module reached a percentage of 89%, which indicates that this module is considered easy to use and supports learning activities effectively. With a high level of interest and practicality, this e-module has the potential to be an innovative and relevant learning medium to instill the value of mutual cooperation in the theme of local wisdom in elementary schools.

#### 4.4 Implementation Stage

The following are the results of the questionnaire given to grade 5 teachers at Al Amanah Elementary School, South Tangerang in implementing the e-module:

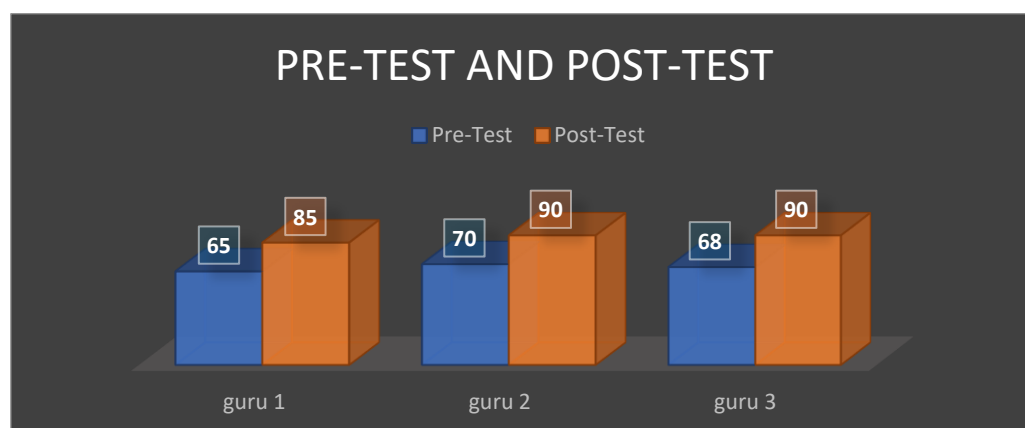
**Table 5.** Results of E-Module Implementation

No.	Assessment Aspects	Maximum Score	Average Score	Percentage (%)
1.	Ease of use of e-modules	20	18	90%
2.	Suitability of material to theme	20	17	85%
3.	Relevance to the value of mutual cooperation	20	19	95%
4.	Student involvement in activities	20	16	80%
5.	Compliance with curriculum needs	20	18	90%

Based on the results of the analysis of table 5, the developed e-module has a very high level of practicality, with the highest score in the aspect of the relevance of mutual cooperation values reaching 95%. This shows that the e-module is very effective in conveying character value messages, especially in the context of local wisdom that is in accordance with the objectives of the Merdeka Curriculum. In addition, the aspects of ease of use and suitability to the curriculum also received a very good rating, which was 90%. This assessment confirms that the e-module is easy for teachers to implement and is relevant to the needs of thematic learning in elementary schools. However, the score on student engagement in activities reached 80%, which indicates areas that need to be improved. Lower student engagement indicates the need for improvements in the interactive features of the e-module, such as the addition of group-based activities, interactive quizzes, or digital simulations to attract active student participation. These improvements are expected to significantly increase student engagement, so that the e-module is not only practical for teachers, but also more interesting and useful for students in understanding and applying the values of mutual cooperation.

#### 4.5 Evaluation Stage

Based on pre-test and post-test data from three respondent teachers, an in-depth evaluation of the research results shows that the use of e-modules containing mutual cooperation characters on the theme of local wisdom significantly increases the understanding and ability of respondents in integrating character values in learning as seen in Figure 2 below:



**Figure 2.** Pre-Test and Post-Test Results

Based on Figure 2, the results of the pre-test and post-test, there was a significant increase in learning outcomes after using the e-module containing the character of mutual cooperation while the average post-test score increased to 88, indicating an average increase of 20 points. All respondents showed better results in the post-test, indicating that the e-module was able to improve understanding of the learning material. This increase indicates that the e-module is effective in helping teachers understand the concept of local wisdom and the value of mutual cooperation, while providing a more interesting and relevant way to teach it to students. With these results, the e-module can be recommended as an innovative learning media that supports the achievement of character-based education goals in elementary schools. However, further evaluation and development are still needed to ensure the sustainability of the effectiveness of the module in various learning contexts.

Thus, the E-module containing the character of mutual cooperation on the theme of local wisdom has proven effective in improving teacher learning outcomes, both in terms of understanding the material and teaching skills. With an increase in average score of 20 points in the post-test and positive feedback from respondents, this module has great potential to be widely applied in character-based learning. However, improvements in technical features and flexibility of use time can further increase its impact.

## 5. Discussion

The results of the instrument given to 3 grade 5 teachers containing the character of mutual cooperation on the theme of local wisdom showed a very positive response. Based on the questionnaire results table, this e-module has advantages in various aspects, ranging from attractiveness, value relevance, ease of use, suitability to the curriculum, to student involvement. The attractiveness aspect of the e-module received an average score of 90%, confirming that visual elements such as images, videos, and interactive animations in the module were able to attract the attention of teachers and students. Teachers stated that this e-module was more interesting than conventional learning media such as textbooks, so that it could increase students' interest in learning. This finding is supported by research by Alharbi and Drew (2021), which states that multimedia elements in e-modules can increase motivation and learning experience.

The relevance aspect of mutual cooperation values obtained the highest score with a percentage of 95%. Teachers considered that the materials and activities in the module were very relevant to conveying mutual cooperation values, especially through collaboration-based activities and case studies on local traditions. For example, the community service simulation included in the module helps students understand the application of mutual cooperation values in everyday life. Zhang et al.'s (2023) research supports this finding by stating that contextually relevant activity-based learning can strengthen students' understanding of character values.

The ease of use aspect also received a high rating, namely 90%. Teachers stated that this module is easy to use thanks to the simple navigation and clear guidance. This makes it easier for teachers to integrate the module into daily learning, without requiring additional technical training. A study by Hung et al. (2022) showed that ease of use is an important factor in

ensuring the success of implementing digital learning media. The module's suitability to the Merdeka Curriculum scored 85%. Teachers assessed that the materials and activities in the module were in accordance with thematic learning themes, especially in supporting the Pancasila Student Profile Strengthening Project (P5). This is in line with research by Sukoco et al. (2023), which found that curriculum-based digital media can improve the achievement of learning objectives.

However, the student engagement aspect scored lower, at 80%. Teachers observed that some students were still passive in using the module, especially in collaboration-based activities. This problem can be overcome by adding interactive features such as gamification or digital simulations to increase student participation. Research by Ruan et al. (2021) states that inclusive and interactive activity designs can encourage more optimal student engagement. Overall, the results of the table show that this e-module is very suitable for use as a character-based learning medium, although some improvements are needed in the interactive features to ensure better student engagement. This e-module successfully meets the needs of local wisdom-based thematic learning while supporting the strengthening of mutual cooperation values in elementary schools.

The results of the study indicate that the e-module containing the character of mutual cooperation on the theme of local wisdom has a significant positive impact on learning in elementary schools. The use of the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model provides a systematic framework for developing relevant, interesting, and effective modules. Each stage of ADDIE contributes to the success of this e-module in improving teacher understanding and supporting the implementation of character education in accordance with the Merdeka Curriculum. At the analysis stage, identification of needs showed that teachers needed interactive and relevant teaching media to teach the values of mutual cooperation contextually. The theme of local wisdom was chosen because it reflects the local culture that is familiar to students, so that it can instill the values of mutual cooperation through meaningful learning experiences. This is in line with the research of Putra and Ningsih (2022), which states that local wisdom-based learning is effective in strengthening students' character. In addition, infrastructure analysis shows that most schools have basic technological devices such as computers and projectors, but internet access is still a challenge in some areas. Therefore, the module is designed to be accessible offline to ensure flexibility of use (Anderson et al., 2022).

The design stage resulted in a module structure consisting of an introduction to the value of mutual cooperation, collaboration-based activities, case studies, and evaluations. Multimedia elements such as videos, images, and interactive quizzes were used to increase the attractiveness and effectiveness of the module. A constructivist approach was applied in the design of activities, where students were invited to build understanding through simulations and group work. This design is consistent with the findings of Zhang et al. (2023), which showed that activity-based learning can improve students' social skills and understanding of moral values. In the development stage, the module was created using software such as Canva and PowerPoint to create attractive and easy-to-use visuals. Validation by material experts and media experts resulted in an attractiveness level of 94% and a practicality of 89%, indicating that this module was well received. However, the validators also provided input to improve interactive features such as gamification elements. Research by Hung et al. (2022) supports the addition of gamification in digital learning modules to increase student motivation and engagement.

The implementation stage was carried out through a module trial on three grade 5 teachers for one week. The pre-test and post-test results showed an increase in the average score of 20 points, from 68 to 88. This shows that the e-module is effective in improving teachers' understanding of local wisdom-based learning materials and mutual cooperation values. Teachers also provided positive feedback, stating that this module is relevant to the curriculum and makes it easier for them to deliver learning materials. Research by Sukoco et al. (2023) supports this finding, where technology-based learning media can increase the efficiency and effectiveness of learning. The evaluation stage revealed the success of the module in conveying mutual cooperation values, with a relevance level reaching 95%. However, the evaluation also showed the need to improve interactive features to ensure higher student engagement. Teachers recommended the development of more interesting and inclusive activities, especially for students who tend to be passive. With these improvements, the e-module can be an

innovative learning media that supports the achievement of character-based education goals in elementary schools.

## 6. Conclusion

Character education, especially the value of mutual cooperation, is very important in shaping students' personalities in accordance with the objectives of the Merdeka Curriculum and the Pancasila Student Profile. Mutual cooperation, which is an Indonesian cultural value, needs to be instilled early on through learning that is relevant to the social and cultural context of students. Although there are challenges in integrating character education, the use of technology such as e-modules based on local wisdom can be a solution to optimize the teaching of character values. The trial results show that e-modules containing the character of mutual cooperation are effective in increasing student understanding and involvement in learning.

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