Development of e-modules containing the character of mutual cooperation on the theme of local wisdom in elementary schools

Novi Eka Saputri[1*]; Saddam Fathurrachman[2]
Universitas Terbuka, Jakarta, Indonesia
*Corresponding Author. E-mail: novi.eka.saputri@ecampus.ut.ac.id[1],
saddam.fathurrachman@ecampus.ut.ac.id

Abstrak

Pendidikan karakter, terutama dalam konteks Kurikulum Merdeka dan Profil Pelajar Pancasila (P5), merupakan aspek penting dalam membentuk generasi berkompeten dan berkarakter. Salah satu nilai inti yang perlu ditanamkan adalah gotong royong, yang mencerminkan semangat kerja sama dan solidaritas sosial dalam budaya Indonesia. Namun, integrasi nilai gotong royong dalam pembelajaran di sekolah dasar menghadapi tantangan, terutama terkait dengan keterbatasan bahan ajar yang efektif. Penelitian ini bertujuan untuk mengembangkan e-modul berbasis kearifan lokal yang mengintegrasikan nilai gotong royong. Fokus utama penelitian ini adalah untuk menilai validitas atau kelayakan e-modul yang dikembangkan dalam mendukung pembelajaran berbasis proyek yang interaktif dan relevan. Metode yang digunakan adalah *Research and Development* (R&D) dengan model ADDIE (*Analyze, Design, Development, Implementation, dan Evaluation).* Pengumpulan data dalam penelitian ini menggunakan skala *likert.* Penelitian ini menghasilkan sebuah e-modul yang mengintegrasikan nilai gotong royong pada tema kearifan lokal di Sekolah Dasar. Berdasarkan evaluasi yang dilakukan, e-modul ini menunjukkan kelayakan yang baik, pada aspek penilaian terhadap modul menunjukkan tingkat kemenarikan sebesar 94% dan kepraktisan sebesar 89%, menegaskan bahwa modul ini relevan, menarik, dan mudah digunakan dalam pembelajaran berbasis karakter.

Kata Kunci: pendidikan karakter, e-modul, kearifan lokal

Abstract

Character education, especially in the context of the Merdeka Curriculum and the Pancasila Student Profile (P5), is an important aspect in shaping a competent and characterful generation. One of the core values that need to be instilled is gotong royong, which reflects the spirit of cooperation and social solidarity in Indonesian culture. However, the integration of the value of gotong royong in learning in elementary schools faces challenges, especially related to the limitations of effective teaching materials. This research aims to develop a local wisdom-based e-module that integrates the value of gotong royong. The main focus of this research is to assess the validity or feasibility of the developed e-module 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 research produced an e-module that integrates the value of gotong royong on the theme of local wisdom in elementary schools. Based on the evaluation conducted, this e-module shows good feasibility, in the aspect of assessment of the module shows the level of attractiveness 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-modules, local wisdom

Introduction

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

Gotong royong is a value deeply embedded in Indonesian culture, reflecting the spirit of togetherness, mutual assistance and social solidarity. Since ancient times, gotong royong has been part of the life of the Indonesian people in facing various challenges, whether in joint work, natural disasters, or social activities. Therefore, it is very important to teach the value of gotong royong to the younger generation from an early age. This is in line with research conducted by Suyatno (2019), which states that gotong royong is not just 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 community and strengthen social ties in society.

Despite its importance, integrating character education, especially the value of gotong royong, in primary school learning faces several challenges. One of the obstacles is the lack of effective and relevant teaching materials to convey these values. Existing learning modules are often inadequate to optimally accommodate the needs of teaching the value of gotong royong. Hidayati (2020) mentioned that existing 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 gotong royong among students. Local wisdom includes traditions, cultures and social practices that have been passed down by ancestors and have positive values that are relevant to everyday life. The integration of local wisdom in learning can provide students with a deeper understanding of gotong royong, 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 students' character development. Therefore, it is important for educators to introduce local wisdom as part of character learning.

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

The development of e-modules containing the value of mutual cooperation based on local wisdom is a strategic step in strengthening character education in elementary schools. By integrating local wisdom, the e-module not only conveys the value of mutual cooperation theoretically, but also shows its application in the context of students' daily lives. This will help students understand the relevance of the value of gotong royong in their lives, as well as connect learning with real experiences. The objectives of Merdeka Curriculum and the Pancasila Learner Profile will be more easily achieved through the development of this kind of e-module, which also supports the achievement of students' social competencies and strengthens their sense of nationalism.

In the digital era, technology integration in education is indispensable 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 value of gotong royong and local wisdom. Suyatno

(2019) revealed that existing digital teaching materials are often unable to convey the value of gotong royong in an effective way, even though this value is an integral part of Indonesian culture that must be passed on to the younger generation. Local wisdom also has an important role in student character building, but is often not accommodated in existing digital teaching materials.

In addition, existing learning media are often not enough to actively involve students in the character building process. Interactive and participatory learning is essential to internalize character values, including gotong royong. Hidayati (2020) emphasizes the importance of learning that actively involves students so that character values can be deeply embedded. However, the limited learning media available is 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 value 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 media, which can actively involve students in the learning process. Thus, students can more easily understand and internalize character values, especially gotong royong, which is 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 Learner Profile.

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 made research respondents. The sample was drawn using total sampling, namely 5th grade teachers at Al-Amanah Elementary School, the research target in South Tangerang. This research was conducted to develop an e-module with gotong royong character 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.

Result and Discussion

Result

1. Analyze Stage

The Merdeka Curriculum places the Pancasila Student Profile Strengthening Project (P5) as an important component of thematic learning and places gotong royong as its main value. One of the main focuses of the Merdeka Curriculum is learning based on local wisdom and the character of gotong royong because of its relevance in building national identity and character. The theme "Local Wisdom" is suitable for instilling the values of mutual cooperation because it reflects the culture and traditions of the local community. Local wisdom, which includes the traditions, culture, and noble principles of the local community, is an important source for forming students who have an awareness of their social environment. The Merdeka Curriculum emphasizes the importance of improving character education (PPK), with the value of mutual cooperation that must be instilled from childhood. Gotong royong 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 characterized (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 the local culture by applying these values in daily life.

The needs analysis was carried out by the research team using interviews and surveys of teachers at SD Al amanah South Tangerang. The results of the interview obtained the essence that

the teacher revealed that digital-based interactive teaching media was needed to attract student interest and help convey character values. The results are as follows:

Table 1. *Needs analysis interview results*

No.	Interview Questions	Teacher Response
1.	What is the urgency of effective local wisdom learning today?	It is not entirely important because the value of students' concern for local wisdom has been greatly reduced and then print media is considered less interesting for students.
2.	What is the desired media for local wisdom learning?	Interactive digital media such as modules with videos, images, and collaborative activities that are currently literate for students who are in the digitalization era are even more literate than their teachers.
3.	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 the value of competing not to cooperate. 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 gotong royong character content is the development of teaching media that is more interactive and relevant to students' current learning styles. Teachers revealed that the printed media that have been used tend to be less attractive to students, so digital-based e-modules that combine text, images, videos, and collaborative activities are needed. Furthermore, teachers stated that students need a concrete and comprehensive learning context to understand the value of gotong royong, 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 student understanding while instilling the values of mutual cooperation in everyday life.

Furthermore, the survey results found a recap of the results of the needs analysis are:

Table 2. *Observation of needs analysis*

No.	Interview Questions	Teacher Response
1.	Curriculum Context	The Merdeka Curriculum strongly focuses on and emphasizes the importance of character values, including gotong royong and local wisdom in PPK.
2.	Teacher Needs	In this digital era, teachers need various interactive media to increase the effectiveness of learning, especially in dealing with students who grow and develop in the digital era.
3.	Student Interests and Preferences	The findings in the field and teacher interviews found that students prefer interactive digital media involving videos and collaborative activities. Thus, students' needs can be met in the implementation of holistic learning at school
4	Technology and Infrastructure	The school has 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 analysis show that the making of e-modules with gotong royong character with the theme of local wisdom is very relevant to meet the needs of learning 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 gotong royong as the main value. The results of interviews with teachers show that current educational tools, such as printed books, do not interest students 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 more engaging methods to understand the value of gotong royong. According to the infrastructure and technology evaluation, most schools have basic devices such as computers and projectors, and students have considerable access to smart phones. However, this e-module is expected to improve students' understanding of the value of local wisdom while instilling the character of gotong royong, as limited internet access in some areas is a challenge that needs to be overcome.

2. Design Stage

The design stage in the development of e-modules with gotong royong characters on the theme of local wisdom in elementary schools includes several systematic steps to produce relevant and quality products. The first step is to draft the product by determining the module structure which 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, 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). Next, a validation instrument was developed to evaluate content suitability, media quality, interactivity, and practicality. Validators consisting of material experts, media experts,

and teachers used a Likert scale to assess the feasibility of the module and provide additional input. Revisions were made based on the validation results to improve the e-module to meet effective learning standards (Sugiyono, 2018).

Translated with DeepL.com (free version)

The design stage in the development of e-modules with gotong royong characters on the theme of local wisdom in elementary schools includes several systematic steps to produce relevant and quality products. The first step is to draft the product by determining the module structure which 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, 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). Next, a validation instrument was developed to evaluate content suitability, media quality, interactivity, and practicality. Validators consisting of material experts, media experts, and teachers used a Likert scale to assess the feasibility of the module and provide additional input. Revisions were 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. concern for
Product Manufacturing	Developing e-modules using software with multimedia elements	Initial product of e-module with interactive features.
Validation Instrument	Develop validation	The validation instrument was

questionnaires based on a for material experts, media experts, and teachers.		Likert scale.

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

3. Development Stage

The Research & Development (R&D) activities carried out in this study resulted in an e-module product containing gotong royong characters on the theme of local wisdom in Elementary Schools (SD) by paying attention to the assessment criteria of validity, attractiveness, practicality and effectiveness. The validity assessment 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 South Tangerang. Based on the content expert validation assessment on the e-module, it reached a percentage of 90%, and the design expert validation reached a percentage of 88%. These results can be seen from the data in Figure 1 below:

Figure 1: *Material and Design Expert Validation*

Furthermore, testing was carried out in small groups with the aim of testing the e-modules and obtaining an assessment of the

attractiveness and practicality of the e-modules by teachers in the field trial. Based on the small group trial, the attractiveness assessment by teachers on the teacher e-module reached a percentage of 94%, and the practicality assessment by teachers, the teacher e-module reached a percentage of 89%. These results are illustrated in table 4.

Table 4. *Recapitulation of E-Module Trial*

Respondents	Products	Attractiveness	Practicality
Teacher	E-module	94%	89%

The results of the teacher assessment of the e-module with gotong royong character showed that this module has a very high level of attractiveness, with a percentage of 94%. This indicates that the e-module successfully attracts teachers' attention and interest to be used in learning, both in terms of visual design, multimedia elements, and interactivity. In addition, the practicality assessment 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 attractiveness and practicality, this e-module has the potential to be an innovative and relevant learning media to instill the value of gotong royong in the theme of local wisdom in elementary schools.

4. Implementation Stage

The following are the results of the questionnaire given to the 5th grade teacher of SD Al Amanah South Tangerang in implementing the e-module:

Table 5. *E-Module Implementation Results*

No.	Assessment Aspect Maximum	Maximum Score	Average Score	Percentage (%)
1.	Ease of use of e-modules	20	18	90%
2.	The suitability of the material with the theme	20	17	85%
3.	Relevance to the value of mutual	20	19	95%

	cooperation			
4.	Student involvement in activities	20	16	80%
5.	Suitability to curriculum needs	20	18	90%

Based on the results of the analysis in Table 5, the developed e-module has a very high level of practicality, with the highest score on the aspect of the relevance of gotong royong value reaching 95%. This shows that the e-module is very effective in conveying character value messages, especially in the context of local wisdom in accordance with the objectives of the Merdeka Curriculum. In addition, the aspects of ease of use and conformity to the curriculum also received a very good assessment, which amounted to 90%. This assessment confirms that the e-module is easy for teachers to implement and relevant to the needs of thematic learning in elementary schools. However, the score on student engagement in activities reached 80%, which indicates an area that needs improvement. Lower student engagement indicates the need for improvements in the e-module's interactive features, such as the addition of group-based activities, interactive quizzes or digital simulations to attract students' active 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 value of mutual cooperation.

5. **Evaluation Stage**

Based on the pre-test and post-test data from the three respondent teachers, an in-depth evaluation of the research results shows that the use of e-modules with gotong royong character content on the theme of local wisdom significantly improves the respondents' understanding and ability to integrate character values in learning as shown in Figure 2 below:
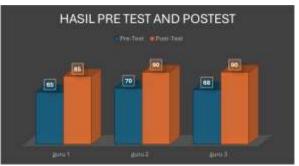

Figure 2: *Pre-Test and Post-Test Results*

Based on Figure 2, the results of the pre-test and post-test, there is a significant increase in learning outcomes after the use of e-modules with gotong royong character while the average value of the post-test increased to 88, showing 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 improvement indicates that the e-module is effective in helping teachers understand the concept of local wisdom and the value of gotong royong, while providing a more interesting and relevant way to teach it to students. With these results, e-modules 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 is still needed to ensure the sustainability of the module's effectiveness in various learning contexts.

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

Discussion

The results of the instrument given to 3 grade 5 teachers with the character of gotong royong 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, compatibility with 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 are able to attract the attention of teachers and students. Teachers stated that the e-module is more interesting than conventional learning media such as textbooks, thus increasing students' interest in learning. This finding is supported by Alharbi and Drew's research (2021), which states that multimedia elements in e-modules can increase motivation and learning experience.

The relevance aspect of gotong royong values obtained the highest score with a percentage of 95%. Teachers assessed that the materials and activities in the module are very relevant to convey the values of gotong royong, 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 the value of mutual cooperation in daily life. Research by Zhang et al. (2023) 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 score of 90%. Teachers stated that the module is easy to use thanks to simple navigation and clear guidelines. This makes it easier for teachers to integrate the module into their daily learning, without the need for additional technical training. The study by Hung et al. (2022) shows that ease of use is an important factor in ensuring the successful implementation of digital learning media. The module's suitability for the Merdeka Curriculum scored 85%. Teachers assessed that the materials and activities in the module are in accordance with thematic learning themes, especially in supporting the Pancasila Student Profile Strengthening Project (P5). This is in line with the research of Sukoco et al. (2023), who found that curriculum-based digital media can improve the achievement of learning objectives.

However, the student engagement aspect scored lower at 80%. The teacher observed that some students were still passive in using the module, especially in collaboration-based activities. This problem can be solved by adding interactive features such as gamification or digital simulation to increase student participation. Research by Ruan et al. (2021) mentioned that inclusive and interactive activity design can encourage more optimal student engagement. Overall, the table results show that this e-module is very feasible to use as a character-based learning media, although some

improvements to the interactive features are needed to ensure better student engagement. This e-module successfully fulfills the needs of local wisdom-based thematic learning while supporting the strengthening of the value of gotong royong in elementary schools.

The results showed that e-modules with gotong royong characters on the theme of local wisdom have a significant positive impact on learning in elementary schools. The use of the ADDIE model (Analysis, Design, Development, Implementation, Evaluation) provides a systematic framework for developing relevant, engaging and effective modules. Each stage of ADDIE contributes to the success of this e-module in improving teachers' understanding and supporting the implementation of character education in accordance with Merdeka Curriculum. At the analysis stage, needs identification shows that teachers need interactive and relevant teaching media to teach the values of gotong royong contextually. The theme of local wisdom was chosen because it reflects local culture that is familiar to students, so that it can instill the value of mutual cooperation through meaningful learning experiences. This is in line with research by Putra and Ningsih (2022), which states that local wisdom-based learning is effective in strengthening student character. In addition, infrastructure analysis shows that most schools have basic technology devices such as computers and projectors, but internet access is still a challenge in some areas. Therefore, the module is designed to be accessed 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 gotong royong, collaboration-based activities, case studies, and evaluation. Multimedia elements such as videos, images, and interactive quizzes are used to increase the attractiveness and effectiveness of the module. A constructivist approach was applied in the activity design, where students were invited to build understanding through simulation 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. At 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 rate

of 94% and practicality of 89%, indicating that the module was well received. However, validators also provided feedback 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 conducted through module trials on three grade 5 teachers for one week. The pre-test and post-test results showed an increase in the average score by 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 the value of gotong royong. Teachers also gave 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 improve the efficiency and effectiveness of learning. The evaluation stage revealed the module's success in conveying the values of gotong royong, with the relevance rate reaching 95%. However, the evaluation also pointed out the need for improved interactive features to ensure higher student engagement. Teachers recommended the development of more engaging 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 primary schools.

Conclusion

Character education, especially the value of gotong royong, is very important in shaping students' personalities in accordance with the objectives of the Merdeka Curriculum and the Pancasila Student Profile. Gotong royong, which is an Indonesian cultural value, needs to be instilled early on through learning that is relevant to students' social and cultural contexts. 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 pilot test results show that e-modules with gotong royong character are effective in improving students' understanding and engagement in learning.

References

Abidin, Z. (2015). Pengembangan E-Modul Sebagai Media Pembelajaran Berbasis Teknologi Digital. *Jurnal Pendidikan dan Teknologi*, 7(2), 101-112.

Alharbi, T., & Drew, S. (2021). Interactive Multimedia in Digital Education: A Systematic Review. *Journal of Learning Media*, 14(1), 89-102.

Anderson, K., Brown, R., & Taylor, J. (2022). Overcoming Infrastructure Challenges in Technology-Enhanced Learning. *International Journal of Educational Technology*, 20(1), 12-25.

Branch, R. M. (2009). *Instructional Design: The ADDIE Approach*. Springer Science & Business Media.

Daryanto, S. (2016). Pengembangan E-Modul Untuk Pembelajaran Interaktif dan Berbasis Karakter. Jakarta: Rajawali Press.

Firdaus, M. (2020). Pemanfaatan E-Modul Dalam Meningkatkan Kualitas Pembelajaran Di Era Digital. *Jurnal Teknologi Pendidikan*, 10(1), 45-57.

Gagne, R., Wager, W., & Briggs, L. (2021). *Principles of Instructional Design*. New York: Holt, Rinehart & Winston.

Hung, C., Lin, P., & Tsai, M. (2022). Gamification in Digital Learning: A Meta-Analysis of Engagement and Motivation Outcomes. *Computers & Education*, 19(3), 451-472.

Kemendikbud. (2017). *Panduan Implementasi Penguatan Pendidikan Karakter (PPK) dalam Kurikulum Merdeka*. Kementerian Pendidikan dan Kebudayaan Indonesia.

Kementerian Pendidikan dan Kebudayaan. (2021). Pedoman Pengembangan Kurikulum Merdeka. Kementerian Pendidikan dan Kebudayaan Republik Indonesia.

Kurniawan, D. (2018). Integrasi Kearifan Lokal Dalam Kurikulum Pendidikan Dasar. *Jurnal Pendidikan Budaya Dan Kearifan Lokal*, 12(3), 132-145.

Hidayati, S. (2020). Pengembangan Bahan Ajar Karakter Berbasis Kearifan Lokal di Sekolah Dasar. *Jurnal Pendidikan Dasar*, 9(3), 45-60.

lharbi, T., & Drew, S. (2021). Interactive Multimedia in Digital Education: A Systematic Review. Journal of Learning Media, 14(1), 89-102.

Nurlina, S. (2019). Pembelajaran Berbasis Karakter Gotong Royong Di Sekolah Dasar. *Jurnal Pendidikan Tematik*, 15(2), 78-89.

Pramudito, A. (2021). Keunggulan E-Modul Dalam Pengajaran Karakter Di Sekolah Dasar. *Jurnal Inovasi Pendidikan*, 13(4), 200-212.

Putra, A. M. (2021). Pemanfaatan E-Modul untuk Pengajaran Karakter Gotong Royong di Era Digital. *Jurnal Teknologi Pendidikan*, 15(2), 92-105.

Putra, M., & Ningsih, R. (2022). The Role of Local Wisdom in Character Education in Indonesia. *Journal of Educational Development*, 11(2), 75-85.

Rahmawati, I. (2018). Kearifan Lokal dalam Pendidikan Karakter di Sekolah Dasar. *Jurnal Pendidikan dan Kebudayaan*, 8(1), 25-37.

Ruan, L., Liu, X., & Wang, J. (2021). Inclusive Design in Technology-Enhanced Character Education. *International Journal of Educational Design*, 10(4), 341-360.

Sugiyono. (2018). *Metode Penelitian Pendidikan*. Bandung: Alfabeta.

Sukoco, D., Rahman, S., & Aulia, N. (2023). Digital Learning Media for Character Education in Elementary Schools. *Journal of Digital Learning*, 18(2), 121-135.

Suyanto, D. (2017). Pendidikan Karakter Gotong Royong Dalam Pembelajaran Tematik Di Sekolah Dasar. Yogyakarta: Pustaka Pelajar.

Suyatno, S. (2019). Pengaruh Pendidikan Karakter terhadap Pembentukan Identitas Sosial Anak Bangsa. *Jurnal Pendidikan Karakter*, 10(2), 115-130.

Taylor, R., & Robinson, P. (2022). Measuring the Effectiveness of Digital Modules in Elementary Education. *Journal of Digital Innovation*, 15(2), 101-120.

Taylor, R., & Robinson, P. (2023). *Engaging Students Through Digital Learning Media: A Study on Preferences and Outcomes*. Journal of Educational Technology, 15(2), 120–135.

Zhang, Y., Lee, P., & Johnson, M. (2023). Activity-Based Learning and Moral Development in Elementary Education. *Educational Psychology Review*, 25(3), 298-320