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DEVELOPMENT OF THE P5 DIGITAL MODULE PLATFORM: POTENTIAL LOCAL WISDOM OF CIREBON IN THE MERDEKA CURRICULUM

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Abstract

Shellcraft, as one of Cirebon's cultural heritages, has great potential to be used as engaging and relevant teaching material for students. This research aims to develop a digital module for P5 focusing on the local wisdom of Cirebon, particularly shell crafts, to support the implementation of the Kurikulum Merdeka in elementary schools for fourth-grade student. The methodology employed is the 4D model, which consists of four stages: Define, Design, Develop, and Disseminate. The needs analysis in the Define stage highlights the importance of a module relevant to local wisdom. The Design stage involves creating engaging storyboards and visuals, while the Develop stage includes creating the module using Canva and Photoshop, followed by validation from subject matter and media experts. Validation results indicate that the module is highly suitable for use, with scores of 93.18% and 97.72% for content validation, and 84.61% and 88.46% for media validation. During the Disseminate stage, the module was introduced in several schools and received positive feedback. The main findings show that the module is effective in enhancing student engagement, with positive response percentages exceeding 82%, particularly in language use, which reached 91.3%. This research emphasizes that the development of the digital P5 module themed around local wisdom of Cirebon is capable of meeting the learning needs of P5 within the Merdeka Curriculum and positively impacts the teaching and learning process in elementary schools..

Keywords: *Digital Module Platform; Independent Curriculum; Local Wisdom*

Abstrak

Kerajinan kerang sebagai salah satu warisan budaya Cirebon memiliki potensi besar untuk dijadikan bahan ajar yang menarik dan relevan bagi siswa. Penelitian ini bertujuan untuk mengembangkan modul digital P5 yang mengangkat tema kearifan lokal Cirebon, khususnya kerajinan kerang, guna mendukung pelaksanaan Kurikulum Merdeka di sekolah dasar pada siswa kelas 4. Dalam penelitian pengembangan ini, metodologi yang digunakan adalah model 4D, yang terdiri dari empat tahap: Define, Design, Develop, dan Disseminate. Subjek penelitian adalah siswa kelas 4 di sekolah dasar yang menjadi target penggunaan modul digital P5 dengan menghitung perolehan skor total tiap item dan persentase respon siswa. Analisis kebutuhan di tahap Define menunjukkan pentingnya modul yang relevan dengan kearifan lokal setempat. Tahap Design melibatkan perancangan storyboard dan visual yang menarik, sedangkan tahap Develop meliputi pembuatan modul menggunakan Canva dan Photoshop, serta validasi oleh ahli materi dan media. Hasil validasi menunjukkan bahwa modul ini sangat layak digunakan, dengan skor 93,18% dan 97,72% untuk validasi materi, serta 84,61% dan 88,46% untuk validasi media. Pada tahap Disseminate, modul diperkenalkan di beberapa sekolah dan mendapatkan umpan balik positif. Temuan utama menunjukkan bahwa modul ini efektif dalam meningkatkan keterlibatan siswa, dengan persentase respon positif di atas 82%, terutama dalam aspek penggunaan bahasa yang mencapai 91,3%. Penelitian ini menegaskan bahwa pengembangan modul digital P5 bertema kearifan lokal Cirebon ini mampu memenuhi kebutuhan pembelajaran P5 dalam kurikulum merdeka dan memberikan dampak positif pada proses belajar mengajar di sekolah dasar.

Kata Kunci: Platform Modul Digital; Kurikulum merdeka; Kearifan Lokal

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Introduction

Local wisdom is a form of human behavior towards the environment that is continuously practiced until it becomes a characteristic of the region. Local wisdom is naturally related to the potential advantages in the area that are utilized to meet the community's needs. This local wisdom differs from traditional wisdom, as it is not merely wisdom that has been passed down from ancient times through generations. also supports this, stating that local wisdom can result from a community's interaction with its environment or society that has recently emerged, with the wisdom being localized (Njatrijani, 2018). Cirebon itself has several forms of local wisdom, including batik, palaces, regional specialties, traditional music and dance, and shell crafts (Cohen, 2019; Jaelani, 2016).

Cirebon's position on the north coast of Java Island gives it considerable maritime potential, including shellfish resources. This also results in abundant shell waste in Cirebon (Gumilang, 2022), which the community uses to create various decorations combined with Cirebon's unique techniques and motifs. Shell crafts originating from Cirebon's local wisdom have now gained international recognition, as evidenced by Cirebon's shellcraft entrepreneurs who regularly export to several countries. This shellcraft is one of the local wisdoms that emerged around 2004 (Roswandi, 2010). Although it is not a tradition passed down from ancestors, this local wisdom has become one of Cirebon's proud identities.

One of the activities in the implementation of the Merdeka Curriculum is the Pancasila Student Profile Strengthening Project, commonly referred to as P5. P5 activities help improve students' performance through project discussions with their peers (Rahmadhani, Maharani, Ardiansyah, & Ferryka, 2024). This program aims to develop students' skills in creating projects that align with the character of the Pancasila student profile (Saraswati et al., 2022). Based on observations at several randomly selected elementary schools in Cirebon, most have carried out P5 activities by choosing from the available themes. In schools that chose the theme of local wisdom, the learning objects are the Cirebon palace and regional specialties. Learning is conducted through direct teaching by teachers at the school, inviting speakers directly related to the learning objects, and visiting places of local wisdom. There are no specific books or information media that students can study independently at school or at home.

Based on the phenomenon observed in the field, there is a gap between the government's goal of providing learning opportunities that align with local environmental issues through the P5 (Pancasila Student Profile Strengthening Project) and the reality in schools. Schools often choose issues that are too broad and not closely related to the students' daily lives as the focus of P5 activities. This contradicts Waite (2020) research, which explains that effective learning methods should involve students in direct interaction with the natural environment and observation of nearby objects, helping them better understand what they are learning (Waite, 2020). As a result, the selection of irrelevant issues leads to a lack of understanding and engagement from students regarding their local environment. Additionally, there is another significant challenge: the lack of modules or resources that enable students to learn independently, both inside and outside the school environment. This gap highlights barriers to expanding effective and sustainable access to education, especially in an era where information technology, such as the internet, greatly supports the implementation of the *Merdeka Belajar* (Freedom to Learn) concept by providing more engaging and interactive learning experiences (Amalia & Asbari, 2023).

Previous research on similar studies, such as the one conducted by Zulhaida (2023), found that the e-module created for P5 activities received a positive response from 4th-grade students at SDN Pengasinan 1, supporting the implementation of the Pancasila student profile strengthening project by 86.49% with criteria being very good or very interesting. The produced e-module was distributed via a Canva link. Then, the research conducted by Yuniarti, Karma, & Istiningsih (2021) stated that the feasibility test of the local wisdom module carried out on a small group in the study resulted in a score of 98%. This score indicates that the use of the local wisdom module is very effective for the content.

Therefore, to align the era of education with independent learning, there needs to be innovation in the delivery of learning to facilitate students' independent study both during and outside school hours. This research aims to bridge that gap by developing a digital module themed around shell crafts as a form of Cirebon's local wisdom. A module is a structured teaching content that is easy to understand and can be used independently or with the assistance of an instructor (Siregar, Solfitri, & Anggraini, 2022). A module can be a solution to help students learn independently or with the assistance of educators because it is organized with core components of the content that have been tailored accordingly (Diana, Netriwati, & Suri, 2018). Furthermore, for cultural content, it involves not just the transfer of knowledge, but also requires active student participation (Resnawati, Arifin, & Hendriyana, 2023).

The difference that makes the development of this module novel is the utilization of technology habituation to create learning modules and P5 activities for students, whereas previously, the module served only as material for teachers. This study aims to demonstrate the process of developing a P5 digital module platform with the theme of local wisdom potential in the Merdeka Curriculum, with the goal of producing digital modules that can be used in P5 activities of the Merdeka Curriculum and help meet students' learning needs. Besides producing digital modules, it is also important to ensure that these modules receive positive feedback from their users.

Research Method

This research uses the D&D method. Developmental research is an effort to develop and produce a product in the form of content, media, tools, and learning strategies used to address classroom/laboratory learning issues, rather than to test theories. According to Borg & Gall in Siwi & Setiawan (2021), this type of research focuses on how the process of developing and evaluating a product or program proceeds. This development will be carried out using the 4D model. The 4D model consists of the steps Define, Design, Develop, and Disseminate. The first step, Define, is often referred to as the needs analysis phase. The second step is Design, which involves preparing the conceptual framework of the model and learning tools. The third step, Develop, involves the development phase, including validation tests or assessing the feasibility of the media. The final step is Disseminate, which is the implementation of the actual target, i.e., the research subjects.

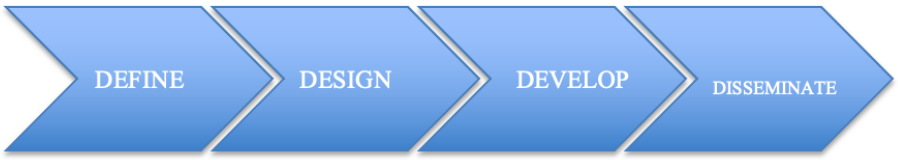

Figure 1
steps of 4D model

The initial stage in the 4D model is Define, which pertains to the development requirements. Simply put, this is the needs analysis phase. In product development, developers need to refer to development requirements, analyze, and gather information on the extent of development needed, which can be done through observations and interviews. This analysis aims to identify the extent to which students and teachers are familiar with the local wisdom of Cirebon, particularly shell crafts, and to reveal whether the lack of relevant local content poses a barrier in the learning process. Additionally, this analysis will also evaluate the preferences of students and teachers regarding the use of digital learning materials. The second stage in the 4D model is Design. In the design phase, a storyboard for the digital module will be created. A storyboard is a sequence of sketches organized in order for multimedia along with its sequence (Pahlevi & Dewi, 2021). The storyboard includes the initial page layout, table of contents, placement of content, and evaluation.

The third stage in the development of the 4D model learning device is Develop. The development stage aims to produce a development product. This step details the creation of the product, including the use of software in making the module, font selection, and media selection. This phase also involves validation tests by content experts and media experts, accompanied by product revisions. The aspects of content validation used are Suitability of Content to the Pancasila Learner Profile, Accuracy of Content, Currency of Content, Encouragement of Curiosity, and Suitability for Learner Development. Meanwhile, the aspects of media validation used are Media Engineering and Visual Communication. The final stage in the development of the 4D model learning device is Disseminate. The dissemination phase is conducted to introduce the developed product to users, whether individuals, groups, or systems (Saptaria & Setyawan, 2021). The content packaging must be selective to produce the correct form. From this dissemination stage, responses and feedback from digital module users are also obtained.

This research will gather student responses to the development results by calculating the total score for each item and the percentage of the total score per item. The following formula is used (Indriyani, 2016):

$$\% \text{ NRS} = \frac{\sum_{i=1}^{n} \text{NRS}}{\text{Maximum NRS}} \frac{\sum_{i=1}^{n} \text{NRS}}{\text{Maximum NRS}} \text{ x } 100\%$$

Explanation:

%NRS = Percentage of Student Response Value (NRS)

$\sum_{i=1}^{n} NRS \sum_{i=1}^{n} NRS$ = Total Student Response Value (NRS) for each question item

Maximum NRS = n × best choice score

= n × 4, where n is the total number of respondents.

Table 1

Response Percentage Categories

%NRS	Kategori
$25\% \leq \%NRS < 43\%$	Very Weak
$44\% \leq \%NRS < 62\%$	Weak
$63\% \leq \%NRS < 81\%$	Strong
$82\% \leq \%NRS \leq 100\%$	Very Strong

Source: 2024 primary data processing results

Results and Discussions

The development of the digital module platform undergoes several tests by experts and direct dissemination to users in the field to obtain the best digital module platform. During the development process of the digital module platform, the researchers identified several findings.

Table 2

Validation Test Results of Contents

No	Aspects Assessed	Score from Validator 1	Score from Validator 2
1	Suitability of Content to Pancasila Learner Profile	10	12
2	Accuracy of Content	11	11
3	Currency of content	4	4
4	Encouragement of curiosity	8	8
5	Suitability for learner development	8	8
	Total	41	43
	Precentage	93,18%	97,72%

Source: 2024 primary data processing results

The content validation test was conducted by two expert lecturers in their fields to measure the achievement of aspects and provide a comprehensive overview of the strengths and weaknesses of the content. After the content validation test, the results showed that the module was deemed highly suitable for use with scores of 93,18% and 97,72%. However, some revisions were needed to improve the quality of the content. These revisions included correcting some inappropriate diction and adjusting the way project activity instructions were delivered in the module to better match student development.

Table 3

Validation Test Results of Media

No	Aspects Assessed	Score from Validator 1	Score from Validator 2
1	Media Engineering	22	24
2	Visual Communication	22	22
	Total	44	46
	Precentage	84,61%	88,46%

Source: 2024 primary data processing results

After obtaining the validation results of the media but still needing some improvements, the researcher needs to make revisions on the parts recommended by the validator. Validators state the product is valid if accepted without needing further revisions after the initial corrections (Yusup, 2018). Once the product revisions are approved, the digital module that meets quality standards and learning needs is achieved. The improvements made to the digital media platform are listed in Table 4.

Table 4

Comparison of digital modules before and after revision

Before revision	After revision
No university logo, pages, or other supporting identities.	Included university logo, pages, digital module identity, and names of supervising lecturers.
No guide on how to use the digital module.	Added a guide on how to use the digital module.
The map of Cirebon and shellfish dishes images are not clear.	Enlarged the images of the map of Cirebon and shellfish dishes.
The color and shape of some fonts in the content section are not clear.	The color and shape of some fonts in the content section are clearer.
The tasks/projects section looks rigid.	The task/project instructions are presented in a dialog animation.

Source: 2024 primary data processing results

The table compares digital modules before and after revisions, highlighting key improvements made during the development process. Initially, the modules lacked essential elements such as a university logo, structured pages, and a user guide, which could hinder students' ability to effectively utilize the digital content. Clarity issues were also prevalent, particularly with the maps of Cirebon and the shellfish dishes, which could confuse users. Additionally, the initial design choices regarding font color and shape negatively impacted readability, while the tasks and projects section appeared rigid and unengaging.

In contrast, the revised modules reflect a more user-centered design approach. The inclusion of the university logo and digital module identity enhances professionalism and fosters a sense of belonging. A comprehensive guide was added to instruct students on using the module effectively, while enlarged images improve visual clarity. Font choices have been refined for better readability, and task/project instructions are now presented in a dialog animation format, which promotes greater engagement. Overall, these revisions significantly enhance the functionality and appeal of the digital modules, improving the overall learning experience for students.

Tabel 5

Students' Responses to the digital shell detective module

Aspect	Student Response	
	Score Percentage (%)	Response Category
Content	88,7	Very Strong
Media Benefits	88,8	Very Strong
Language Usage	91,3	Very Strong
Media Display	88	Very Strong

Source: 2024 primary data processing results

According to Table 5, it is stated that the Shell Detective digital module received a very strong response with a percentage of content aspects, media benefits, language use, and media display above 82%. The highest percentage for language use (91,3) was obtained because students found the language in the digital module to be very interactive. The high enthusiasm of students towards the content indicates a great interest in learning, which will also impact their learning outcomes (Pekdağ & Azizoğlu, 2020). Therefore, it is important to have a module that can increase student interest. The Shell Detective Module received positive feedback from students and teachers as it was considered a significant aid in complementing P5 activities, which previously only had teaching modules for teachers.

The development of the digital module platform for P5: Cirebon Local Excellence Potential in the Merdeka Curriculum aims to present digital contents for P5 activities on the local wisdom theme that can be used flexibly anytime and anywhere. The findings of this research show that the use of technology in education can significantly enhance students' quality of life by providing broader access to learning resources. This development goes through a lengthy process with four stages. The first stage is Define. The Define stage is carried out to identify the potential for developing digital modules for the project to strengthen the Pancasila student profile (P5) around Cirebon's center of local wisdom, which is shell crafts. Needs analysis should obtain information on what should be done or needed rather than just evaluating what has been done. This needs analysis is essential to understand two main aspects: target needs, which indicate what students need in certain situations, and learning needs, which identify what students want in their learning process (Hendriyani, Delianti, & Mursyida, 2018; Nasrulloh & Ismail, 2017).

The needs analysis was conducted in schools around the shell craft center. Information was obtained, based on interviews and observations conducted, that the local wisdom theme is one of the themes in the P5 activities chosen by elementary schools in Cirebon, teachers need content references for the local wisdom theme, and students want engaging learning. This indicates the potential for module development. To support P5 activities, it is necessary to create a student module with a local wisdom theme specific to the potential in the school's environment. Maharani, Istiharoh, & Putri (2023) explain that P5 activities have a flexible structure, so the use of this module will also be flexible to suit needs. This module is packaged digitally to create free and independent learning activities, both in the classroom and outside the classroom.

The second stage is Design. At this stage, product design is carried out and outlined in a storyboard and GBPM. In the storyboard, the text of the content is placed in the provided boxes, so the text is surrounded by animations that help illustrate the content. Evaluation and self-reflection are included on slides after the project is completed. According to Sudijono in Halimah & Adiyono (2022), evaluation is the center of observation for teachers or evaluators to obtain information about learning activities. The evaluation in the Shell Detective module consists of questions to review project activities, while self-reflection provides several emotional choices that students can select to express their feelings after completing each project. In determining the content and activities in the project to strengthen the Pancasila student profile in the Merdeka Curriculum, there are six dimensions that need to be mastered in line with the identity of the Indonesian nation. In this design stage, four P5 dimensions were selected: (1) Collaboration, (2) Independence, (3) Creativity, and (4) Moral Integrity.

In the module design stage, it is also important to determine a suitable and attractive title. Choosing a catchy and memorable title is proven by linguistic studies that show titles contribute to story memory (Wardiah, 2017). The selection of the title "Shell Detective" is expected to build student's imagination to be meticulous and curious about shells that can be crafted. The choice of the "Shell Detective" title will also influence the character and concept of the digital module illustration, so in this digital module, there are illustrations of the seabed, predominantly in dark blue. These illustrations not only enrich the module's visuals but also help create an atmosphere that aligns with the concept of investigating local shell wisdom, thus making students feel more engaged and enthusiastic in the learning process. With this approach, the module is expected to enhance active student engagement in exploration and analysis, strengthening their observational and analytical skills.

The third stage is Develop, where the product creation process is carried out. The development of this digital module uses Canva software, which is commonly used and easy to use, while some character animations of shells and a boy detective were created using Photoshop software. Kharissidqi & Firmansyah (2022) explain that the Canva application is easy to use and accessible for those unfamiliar with design, as several templates are readily available for modification. In the Shell Detective digital module, three types of fonts are used: (1) Nefelibata Sans for main titles and large text; (2) Sensei for content titles, content or project explanations, and evaluation and self-reflection sections; (3) Atkinson Hyperlegible for project goals, project tools and contents, and project step explanations. The final product is exported as a flipbook that can be accessed anytime with the available link.

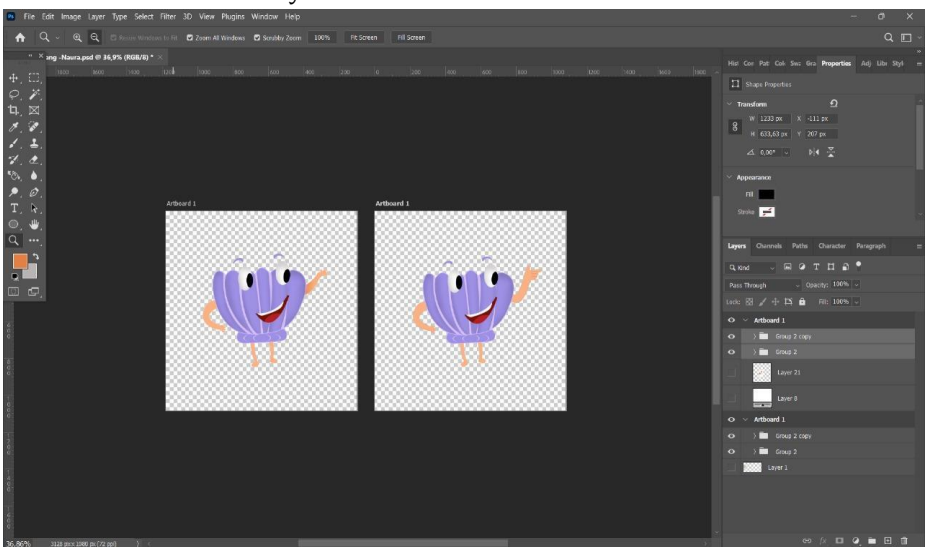

Figure 2
Editing Process in Photoshop
Source: 2024 primary data processing results

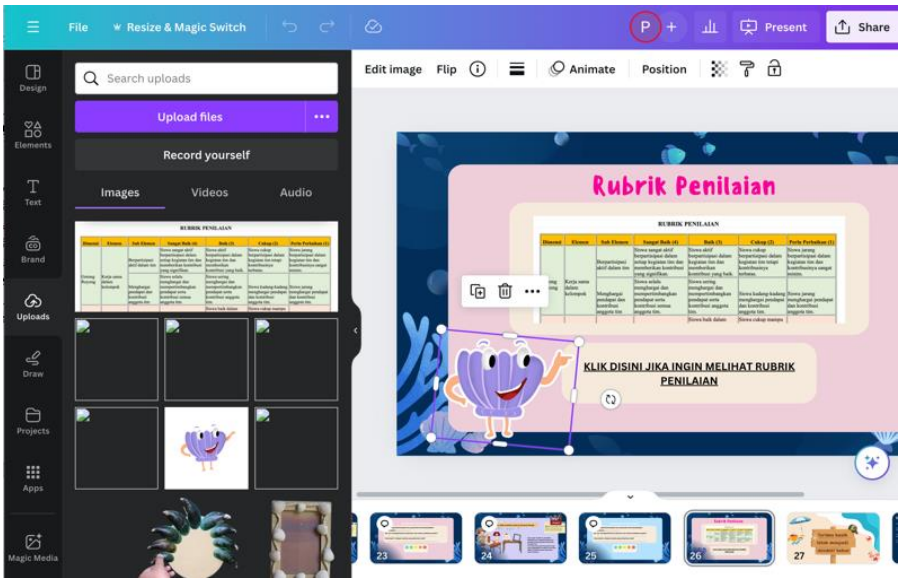

Figure 3
Editing Process in Canva
Source: 2024 primary data processing results

The animated human shell images were created through an editing process in Photoshop based on the researcher's imagination. The shell human character has a shell body, eyes, mouth, and both hands and feet. Meanwhile, the detective animation was created by adapting an existing boy character from the internet, then modified by the researcher to suit the detective character needed in the digital module. Subsequently, all the animation materials and assets that have been created were combined using Canva to assemble the digital module as a whole.

The fourth stage is Disseminate, which is the final stage involving the distribution of the digital module. The dissemination of this digital module is accompanied by the introduction and collection of responses from students and teachers regarding the Shell Detective module. The Shell Detective module is distributed to several schools around the shell craft centers in the Cirebon area, with the hope that this module is relevant to the local wisdom potential in the school environment. During the dissemination activities, the researchers provided guidance to fourth-grade students and teachers on how to use the Shell Detective module. Teachers can share the link through WhatsApp groups, allowing students to access the module individually or in groups. One of the goals of the digital module is to supplement learning resources (Wirganata, Agustuni, & Santyadiputra, 2019). Therefore, the Shell Detective digital module is not the only learning content used by teachers; instead, it can be integrated with local creativity and needs.

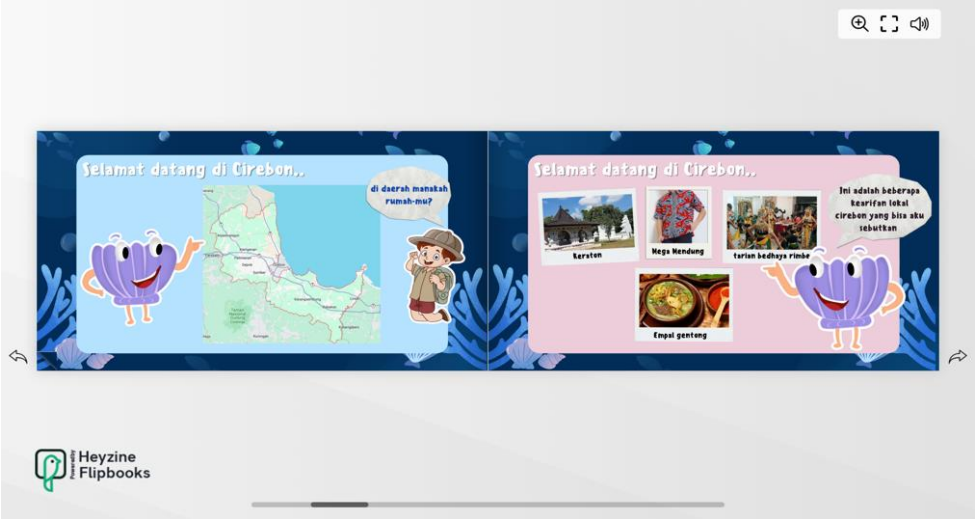

Figure 4
Interface of the digital shell detective module
Source: 2024 primary data processing results

The Shell Detective digital module has several significant advantages. In terms of ease of use, the module is designed to be easily accessible and disseminated via a link. Complex links are transformed into short, simple, and memorable ones (Pratama et al., 2024), making it easier for teachers to distribute them to students. The module can be shared through a link in a group or by scanning a provided barcode. The use of this digital module is also very intuitive; once the module appears on the gadget screen, students can read it by clicking on the left or right to turn the page. In terms of content appropriateness, the module's content is organized progressively from easy to more complex. The module is flexible for use in both individual and group learning. Visually, the Shell Detective digital module, with its underwater theme, can motivate students to learn by fostering a sense of responsibility as a detective towards local wisdom. Task instructions are presented in dialogue form, so the tasks do not feel burdensome to the students.

The advantages became more evident after the dissemination stage. Teachers provided positive feedback, stating that the module is very helpful as it can be adapted to various learning styles they implement. In other words, this digital module is not bound to a single learning style, thus providing high flexibility in the learning process. The Shell Detective module is deemed capable of helping students and teachers obtain P5 content references with a local wisdom theme and accommodate independent learning. Since this module is digital and can be used on various devices, students can study P5 contents both inside and outside the classroom. Such an approach should be common in the digital era where technological advancements, such as digital systems, facilitate every aspect of human life (Ma'rufah, 2022).

During this development process, the limited responses from students and teachers resulted in restricted feedback. A larger and more diverse number of respondents would certainly provide a more comprehensive view of the effectiveness and weaknesses of the module (Khoirudin, 2019). Therefore, further research is needed to produce a digital module that can be used sustainably and has a more significant impact on learning. The development of digital modules with other P5 themes is also necessary to meet the needs of digital modules for all themes. Currently, student engagement and interest may be limited to those interested in the local wisdom theme. Other themes that are more relevant or interesting to students need to be

explored further. In the future, the development of interactive features on the digital module platform also needs to be carried out so that this digital module is more comprehensive and beneficial for students and teachers.

The module developed by Bachri et al. (2024) has been proven to be viable and effective in enhancing students' knowledge of preparedness. The research findings indicate that the use of a digital module integrated with an ethnoscience approach can deepen students' understanding of disaster risks and the mitigation measures that need to be taken during an eruption. The development of an ethnoscience-based digital module can serve as an innovative solution to enhance students' knowledge and preparedness for disasters, as this module can be used flexibly anytime and anywhere.

Research conducted by Li et al. (2024) demonstrates that the Digital Intelligence Quotient (DQ) is a crucial foundational competency for students in the digital age. Improving students' DQ contributes to their ability to adapt to digital learning, as well as enhances their skills in identifying and preventing risks associated with the digital environment. Therefore, the development of digital modules designed to enhance students' competencies is essential, focusing on the need for students to develop relevant skills in the digital era.

Conclusion

This research successfully developed a digital P5 module themed around local wisdom of Cirebon, specifically focusing on shell crafts, as an effort to support the implementation of the Merdeka Curriculum in elementary schools for fourth-grade students. By applying the 4D research model, this module is designed to meet learning needs relevant to local environmental issues, thereby enhancing students' understanding and engagement with their surroundings. Validation results from experts indicate that the module is feasible for use, and positive feedback from students signifies its effectiveness in creating an engaging learning experience. By utilizing technology, this module not only supports independent learning both inside and outside the classroom but also contributes to strengthening local cultural identity, thus opening opportunities for sustainable improvements in the quality of education in Indonesia. Future research should involve a larger and more diverse group of respondents and explore other themes relevant to the students' environment. Additionally, developing interactive features in the digital module will enhance its usability and benefits, making the digital module an essential tool for supporting independent learning.

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