

Multimedia Flipbook Development Using the Hannafin and Peck Model in IPAS Learning at MIS Terpadu Langsa

Annisa Rizqia¹, Jelita², Chery Julida Panjaitan³

^{1,2,3}Institut Agama Islam Negeri Langsa, Indonesia

Correspondence Email: jelita@iainlangsa.ac.id

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Abstract: Students have a significant affinity with digital technology. Therefore, teachers are required to have basic skills in designing and packaging learning that utilizes digital technology to attract and motivate students. This study aims to develop multimedia flipbooks with the Hannafin and Peck model, test the feasibility of the media, and analyze teacher responses and student responses. This research uses the Research and Development (R&D) method with the Hannafin and Peck development model which consists of three phases, namely: (1) needs analysis (analysis); (2) design (design); (3) development (development), implementation (implementation). In the Hannafin and Peck model, all phases involve a process of evaluation and revision. The research subjects were digital fifth grade students of MIS Terpadu Langsa. The results showed that the feasibility of the media can be seen from the average results of validation from the six validators. Material expert validation 94.6% (Very Feasible), media expert validation 95.3% (Very Feasible), language expert validation 82.65% (Very Feasible). Thus it can be concluded that multimedia flipbooks using the Hannafin and Peck model are suitable for use in the learning process for digital fifth grade students of MIS Terpadu Langsa.

Keywords: Development, Teaching Media, Flipbook, IPAS Learning

Abstrak: Siswa memiliki kedekatan yang signifikan dengan teknologi digital. Oleh karena itu, guru dituntut untuk memiliki kemampuan dasar dalam merancang dan mengemas pembelajaran yang memanfaatkan teknologi digital guna menarik perhatian dan memotivasi siswa. Penelitian ini bertujuan untuk mengembangkan multimedia flipbook dengan model Hannafin and Peck, menguji kelayakan media, dan menganalisis respon guru dan respon siswa. Penelitian ini menggunakan metode Research and Development (R&D) dengan model pengembangan Hannafin and Peck yang terdiri dari tiga fase yaitu: (1) analisis kebutuhan (analysis); (2) perancangan desain (design); (3) pengembangan (development), implementasi (implementation). Dalam model Hannafin dan Peck, semua fase melibatkan proses evaluasi dan revisi. Subjek penelitian ditujukan untuk siswa kelas V digital MIS Terpadu Langsa. Hasil penelitian menunjukkan bahwa kelayakan media dapat dilihat dari hasil rata-rata validasi dari keenam validator. Validasi ahli materi 94,6% (Sangat Layak), validasi ahli media 95,3% (Sangat Layak), validasi ahli bahasa 82,65% (Sangat Layak).

Dengan demikian dapat disimpulkan bahwa multimedia flipbook menggunakan model Hannafin and Peck layak untuk digunakan dalam proses pembelajaran bagi siswa kelas V digital MIS Terpadu Langsa.

Kata Kunci: Pengembangan, Media ajar, Flipbook, Pembelajaran IPAS

Introduction

The Merdeka Belajar Curriculum is closely related to the use of digital technology in education. In the digital era, access to learning resources is more open. This curriculum encourages the use of technology to extend learning beyond the classroom. Students can independently explore materials, search for information, and access digital learning resources such as videos, simulations, or online platforms. The advantage of digital technology is that students can use technology to access resources, references, and the knowledge and information they need.

Many web-based applications provide a variety of materials that can be accessed quickly by students, such as e-books, and scientific articles, and also practice questions that can be done online such as Kahoot, Quizizz, Wordwall, Educaplay which can all help the student learning process. More broadly, technology can help make work in the education sector easier. This technology makes all work more efficient because the digitization system speeds up the service process, allowing the running of an education to be more optimal (Ajizah, 2021).

Ministry of Religious Affairs of the Republic of Indonesia carries the “Digital Madrasah Program” as a role model and learning media for the future (Tim Peneliti Pendidikan Agama dan Keagamaan Jakarta, 2019). Digitalization in the world of education is a must, if madrasahs do not utilize technology in learning and education then madrasahs will be left behind, and graduates will have difficulty finding work because they do not understand technology. There are three things that can make madrasahs stronger and more dignified, namely maintaining quality, devotion to achievement, and good performance. So Madrasahs must also prepare themselves to succeed the program.

One of the platforms utilized is digital technology in the form of flipbooks. Flipbook is a learning media in the form of a virtual book with an album-like appearance, which contains learning material in the form of images or text arranged in a certain order (Kurniawan & Anandari, 2019). In the context of teaching materials, flipbooks can be used to present learning materials. By using digital technology, flipbooks can be filled with illustrations, photos, text, and other multimedia content relevant to the learning material.

By utilizing digital technology in the form of flipbooks, teaching materials can be more interesting, easy to understand, and affordable. Users can access flipbooks through electronic devices such as computers, tablets or smartphones, allowing flexible access and can be accessed anytime and anywhere. Thus, the use of digital technology in the form of flipbooks as teaching materials can enrich learning, and increase student interest and understanding.

One alternative to minimize the shortcomings of printed teaching materials is to utilize digital formats. Electronic teaching materials offer a more attractive and interactive display. In addition, its use is more cost-effective because it can be accessed through computer devices or smart devices that are widely owned. The main advantage of digital teaching materials is their ability to provide multimedia information such as images, animations, and videos that make the learning process more interesting and motivating.

Based on research conducted by Kucahyono in 2018, it was found that in the learning process in the classroom, most students tend to pay less attention to the explanation delivered by the teacher. This fact is reflected in the average of 70% of students who appear to be joking and chatting outside the learning topic with their classmates. In addition, the interest and enthusiasm of learners in responding to questions from the teacher is also relatively low, where only about 20% are actively involved in the question and answer session. This phenomenon is indicated to occur due to the teacher-centered learning approach and the lack of innovation from teachers in developing interesting teaching materials for students (Kuncahyono, 2018).

One of the schools that has implemented the independent curriculum and also implemented a digital madrasah is Madrasah Ibtidaiyah Terpadu Langsa. Langsa Integrated MIS is the first Madrasah Ibtidaiyah to use digital learning in Aceh province since 2019. Researchers made initial observations in grade 5 of the Langsa Integrated MIS. Initial observations were carried out through an interview process by the Head of Curriculum and Grade 5 Teacher to analyze the needs of teachers and the needs of students, analysis of the application of the curriculum at school and the facilities and infrastructure available at school.

Based on observations and interviews conducted at MIS Terpadu Langsa, it was found that the school still relies on the use of paid e-books as the main source of learning. This raises several significant problems. First, the use of paid e-books burdens the school budget and parents, especially for families with middle to lower economic conditions. Secondly, reliance on commercial e-books limits teachers' flexibility in tailoring learning materials to students' specific needs. Third, the use of paid e-books does not encourage teachers' creativity and independence in developing teaching materials that are innovative and in accordance with the Merdeka Curriculum. These problems indicate the need for alternative solutions that are more sustainable, economical, and adaptive to modern learning needs.

To strengthen the research, the researcher also analyzed the availability of facilities and infrastructure in the school through interviews with teachers. The results of the interview revealed that the facilities and infrastructure in the school had been fulfilled. The condition of the internet network in the school environment is also adequate based on observations made. The homeroom teacher also said that in the learning process, students are very enthusiastic and motivated in learning when using the digital facilities that the school provides. By considering the condition of the existing facilities, the e-book development research at the school is considered feasible

to be implemented because it is supported by the availability of adequate infrastructure.

Flipbook development has been carried out by previous researchers, namely by Agung Dian Putra (2023) developing flipbooks on energy material at SD IT At-Rahman. Other research has been conducted by Wazi'atus Santiyah (2022) developing e-books on social studies learning at MTs. In addition, from Umami Zahara Azmi (2023) flipbook development on grade 5 social studies learning. Then from Haqqun Nazir (2023) e-book development using the Hannafin and Peck model in cultural arts subjects. The four studies above have similarities and differences in the research conducted. Both from the software used, location, methods, and materials developed. Based on the background description above, the researchers are interested in developing media to support the learning process at school with the title "Development of Multimedia Flipbook Using the Hannafin and Peck Model in IPAS Learning at Integrated MIS Langsa".

This study aims to develop multimedia flipbooks using the Hannafin and Peck method in learning IPAS at Integrated MIS Langsa and describe the feasibility of flipbooks. The benefits of this research for educators are to provide an overview to teachers about the use of multimedia technology, especially multimedia flipbooks, as an effective learning media. The benefit for students is that students will get a more interactive learning experience.

Method

This research uses Research and Development (R&D), which is a research method used to produce a certain product and test the effectiveness of the product. The R&D method is a research approach to produce new products or improve existing products (Saputro, 2017). The model used in this research and development is the Hannafin and Peck model which consists of three phases, namely: (1) analysis; (2) design; (3) development, implementation (Hannafin, M. J., Peck, 1998). In this model, all phases involve the process of evaluation and revision. The advantages of the Hannafin and Peck model emphasize the assessment process and the model is product-oriented, especially multimedia products. In addition, this model offers a simple learning design approach, which allows the design process from needs analysis, design, development, to implementation to be done efficiently without requiring a long time.

The subjects of this research and development were 5th grade digital students of Integrated MIS Langsa. The data collection techniques used in this research and development are questionnaires and documents. Questionnaire is an instrument used to collect data from respondents in the form of a questionnaire containing structured or open questions. This questionnaire aims to assess the feasibility of the product, as well as find out comments and suggestions from material experts, media experts, linguists, class teachers, and digital 5th grade students. Researchers used a closed questionnaire in which a closed questionnaire is a questionnaire in which the answers to the questions have been provided by the researcher (questionnaire maker), the respondent only chooses one of the answer options from the available questions (Rahmadi, 2011).

The answer options used by researchers in the questionnaire are in the form of a Likert scale with a score range of 1-5 (very bad, not good, enough, less, very less).

Table 1. Product validity criteria

Product Feasibility Score	Criteria
$0\% \leq x \leq 20\%$	Very unfeasible
$21\% \leq x \leq 40\%$	Not feasible
$41\% \leq x \leq 60\%$	Sufficient
$61\% \leq x \leq 80\%$	Feasible
$81\% \leq x \leq 100\%$	Very feasible

The research used both quantitative and qualitative data. Quantitative data came from the numbers in the questionnaire, while qualitative data came from respondents' comments and suggestions. Descriptive analysis was applied to the qualitative data. The results of the analysis of these two types of data were used to evaluate the product. Quantitative data analysis was obtained from questionnaire scores using the Likert scale formula of (Sugiyono, 2017). Furthermore, the percentage results obtained from the questionnaire will be matched with the product validity criteria shown in Table 1 (Tegeh, 2014).

Results and Discussion

Digital Learning Media at MIS Terpadu Langsa

In this research and development produced a digital learning media, namely Flipbook on IPAS learning material Chapter 8, (Bumiku Sayang, Bumiku Malang) for grade V students of Integrated MIS Langsa which has been validated by several experts, made improvements, and has been tested. The results of product development will be described in accordance with the procedures of the Hannafin and Peck development model. The first stage is needs analysis, the goal is to obtain information about the problems or needs of students in the learning process. This analysis stage is divided into three, namely needs analysis, material analysis, and analysis of student characteristics. Based on the researcher's observation, it was found that schools still rely on the use of paid e-books as the main source of learning. This caused some significant problems. Furthermore, the researchers analyzed the material by reviewing the Learning Outcomes (CP) and Learning Objectives of IPAS grade V. Finally, researchers analyzed the characteristics of students, researchers identified that in the learning process students were very enthusiastic and motivated in learning when using digital facilities that the school provided. So it is suitable to develop digital-based learning media which includes text, images, videos, questions, and games that can be used by students anywhere and anytime.

The second stage is design, at which stage the researcher begins to design the flipbook to be developed, starting from the selection of supporting applications for making flipbook teaching materials. Then compile learning materials consisting of 5

chapters, namely 1) natural disasters, 2) various kinds of natural disasters, 3) the impact of natural disasters, 4) prevention of natural disasters, 5) human activities that cause natural disasters and also prepare elements in the flipbook including cover page, preface, usage guide, CP, TP, and ATP, character introduction, table of contents, material coverage, simple simulations, learning videos, LKPD, evaluation, follow-up, quizzes, games, bibliography, and author profile.

The third stage is development and implementation, researchers began developing e-books using the Canva and Heyzine applications. The total e-book is 66 pages, following the e-book link (<https://heyzine.com/flip-book/62070b8a37.html>). Figure 1 shows the e-book editing process using the Canva application. Meanwhile, Figures 3-4 show the final results of the e-book, book on a laptop/PC or smartphone/HP display.

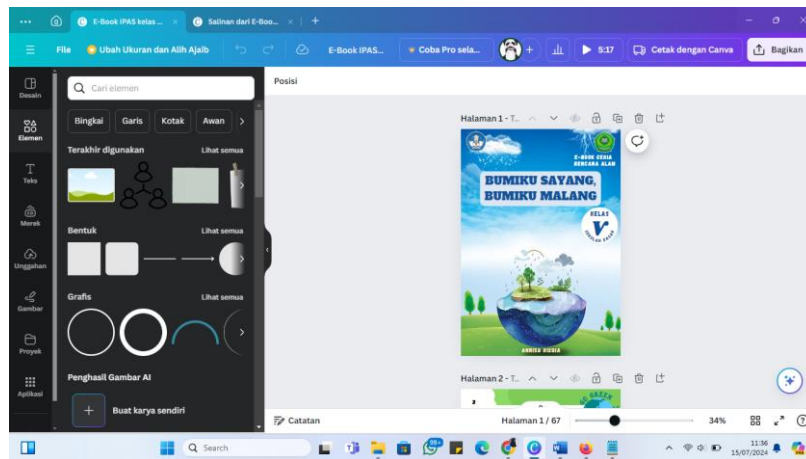


Figure 1. E-Book Editing Process Using Canva Application



Figure 2. The Process of Turning PDF into Flipbook Using Heyzine

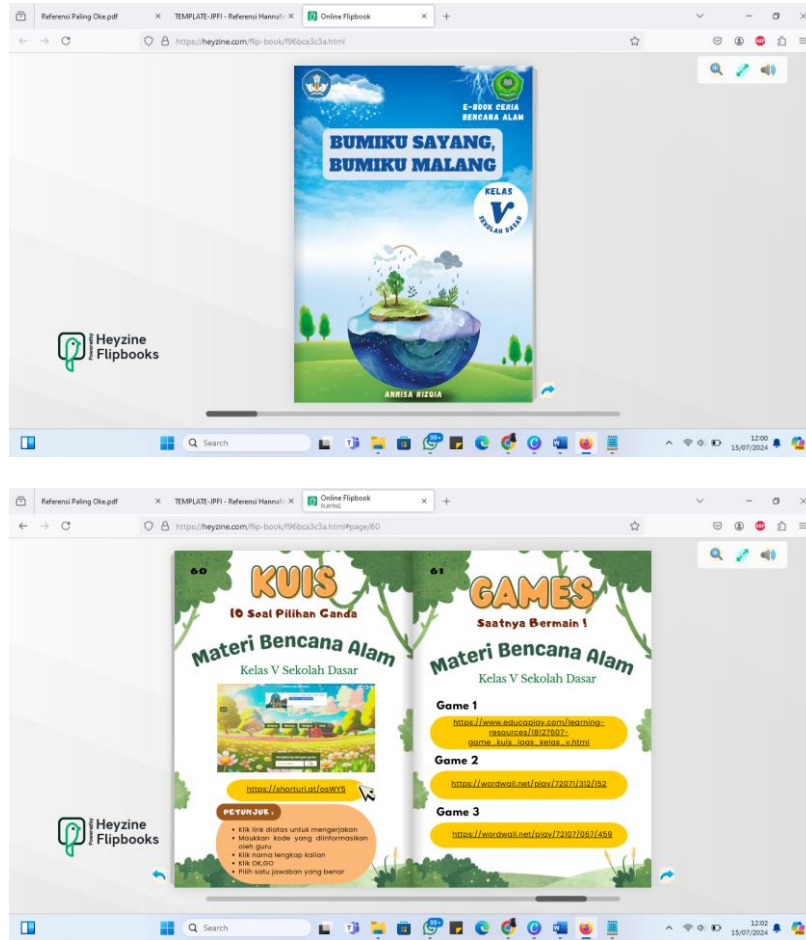


Figure 3. E-Book Display Using Laptop/PC



Figure 4. E-Book Display Using Smartphone/Phone

Material Expert Validation Results

The finished product is then tested for validity by material experts to test the validity of the product and find out the shortcomings and errors in the product that has been developed. Material expert validation was carried out by two validators, namely one PGMI lecturer at the Langsa State Islamic Institute and one Muhammadiyah 1 Langsa Elementary School teacher who specializes in Natural Sciences (IPA). On the material expert validation sheet includes two aspects, namely assessing the feasibility of content, and contextual which contains 10 assessment items. Table 2 shows the results of the material expert validation.

Table 2. Product Validation Results from Material Experts

No	Material Expert	%	Kriteria
1	I	86%	Very feasible
2	II	96%	Very feasible
Mean		91%	Very feasible

Based on the results of the material assessment conducted by material expert validators I and II, the average percentage of validators is 91% with very feasible criteria without having to be revised. It can be concluded that the material feasibility scale contained in the multimedia flipbook is "Very Feasible".

Product Validation from Media Expert

Media expert validation was carried out by two validators, namely one PGMI lecturer at the Langsa State Islamic Institute and one graphic designer who specializes in media design. On the material expert validation sheet includes three aspects, namely assessing media efficiency, media accuracy, and design which contains 15 assessment items. The results of media expert validation can be seen in Table 3.

Table 3. Product Validation Results from Media Experts

No	Media Expert	%	Kriteria
1	I	94,6%	Very feasible
2	II	96%	Very feasible
Mean		95,3%	Very feasible

Based on the results of the material assessment conducted by media expert validators I and II, the average percentage of validators is 95.3% with very feasible criteria. However, based on the advice of media expert validator I, it is necessary to revise the product without having to revalidate the media. It can be concluded that the feasibility scale of multimedia flipbook is "Very Feasible". The suggestions from media expert I are: 1) Revision on the cover page, by clarifying the logo image, because it

blends with the cover color. And the selection of the title font size is too small, it should be replaced with another font or enlarged the title font. 2) Revision on page 6 of the e-book by removing the cloud decoration because it seems too crowded. And on page 7, provide a bubble or text balloon on the character introduction page so that students remember that their character is talking. 3) Revise page 54 by changing the font to white color. And on page 55 by changing the Youtube link settings that can be seen immediately, so there is no need to click the link again.

Results of Product Validation from Linguists

The validation of linguists was carried out by two validators, namely one PGMI lecturer at the Langsa State Islamic Institute and one Langsa Integrated MTS teacher who specializes in the field of Indonesian Language. On the linguist validation sheet which contains 10 assessment items. The results of media expert validation can be seen in Table 4.

Table 4. Results of Product Validation from Linguists

No	Language Expert	Before revision		After revision	
		%	Criteria	%	Criteria
1	I	54,6%	Sufficient	90%	Very feasible
2	II	96%	Very feasible	-	-
Mean		75,3%	Feasible	90%	Very feasible
Total Mean		%	Criteria		
		82,65%	Very feasible		

Based on the results of the language assessment conducted by linguist validators I and II, the average percentage of validators is 75.3% with decent criteria. However, based on the suggestions of material expert validator I, product revisions need to be made. After making improvements to stage 2 language validation, the results of the linguist validation assessment get an average percentage of 82.65% with very feasible criteria. It can be concluded that the multimedia flipbook feasibility scale is "Very Feasible". The suggestions from linguist I are: 1) Revise the use of the word "it is possible" to be a word whose meaning is in accordance with the discussion. Revise the use of the word "it is" to "the change is". 2) Revise the use of the word "it cannot be planned" to "this event cannot be planned". 3) Revision by changing the use of punctuation because there are still many mistakes found in the flipbook. 4) Revise by adding pictures of each phenomenon that is closest to the students. Such as flooding in Aceh Tamiang, earthquake.

Teacher and Student Response

The implementation stage was carried out by digital V grade teachers and students on Tuesday, May 28, 2024. The teacher response sheet includes two aspects of assessment, namely learning material assessment, and media feasibility which contains 8 assessment items. Table 5 shows the results of the teacher's response.

Table 5. Teacher Response Results

Total	%	Criteria
37	92,5%	Very feasible

Based on the results of the teacher's response related to multimedia flipbook, it gets a percentage of 92.5%. It can be concluded that the feasibility scale of teacher responses in multimedia flipbooks is "Very Feasible" for use in learning. The teacher also stated that the learning media used made students motivated to learn and could create a pleasant learning atmosphere, thus achieving learning.

Student responses were collected from 18 digital grade V students of MIS Terpadu Langsa. The collection of student responses aims to assess the interest, ease of use, and effectiveness of the flipbook learning media from the point of view of the main users, based on predetermined indicators. In addition, student responses also help identify areas that need to be corrected or improved. The following recapitulation of student response results can be seen in table 6.

Table 6: Student Response Results

Total	%	Criteria
845	93,8%	Very Interesting

Based on the results of student responses related to multimedia flipbooks get a percentage of 93.8%. It can be concluded that the feasibility scale of student responses in multimedia flipbooks is "Very Interesting" to be used in learning.

MIS Terpadu Langsa's Multimedia Flipbook Development Using the Hannafin and Peck Model for IPAS Learning

This research produces a flipbook learning media called E-Book Ceria to support fifth grade Merdeka Curriculum learning. This research and development uses the Hannafin and Peck development model which consists of three stages, namely: (1) needs analysis (analysis); (2) design design (design); (3) Development (development), implementation (implementation), evaluation (evaluation). The validity of the product is based on the results of the validity test by two material experts, two media experts,

and two linguists as well as from the responses of teachers and students of class V Integrated MIS Langsa.

Based on the results of the analysis of the assessment of material expert I and material expert II, the average percentage is 91% with very feasible criteria. The IPAS material presented is aligned with the learning outcomes of the Merdeka Curriculum, covering important concepts of natural and social science that are relevant for grade 5 students (Permendikbudriset Indonesia, 2022). In addition, the preparation of the material is carried out coherently and clearly, enriched with examples from everyday life, increasing understanding and making it easier for students to learn Natural Disaster material. Putra & Suniasih, 2021 stated that with coherent activities, learning objectives can be achieved and run conducive (Putra & Suniasih, 2021). Overall, the feasibility of this IPAS material shows its potential in supporting effective and meaningful learning for grade 5 students. This is in accordance with the ideas of Piaget, an expert on child cognitive development, who said that children in the age range of 7-14 years are at the level of concrete thought (Bell, 1991). In this phase of development, learners are greatly helped by visual representations such as pictures and illustrations that are relevant to the learning objectives. These visuals should reflect their personal experiences. This approach facilitates the process of making meaning of children's learning outcomes, both through the assimilation of new information into existing knowledge structures, as well as accommodation which involves adjusting cognitive structures to integrate new experiences (H. Baharuddin, 2007).

Furthermore, the analysis of the assessment of media experts I received a percentage of 94.6% with the criteria Very Feasible with revisions according to suggestions without having to revalidate. After making revisions based on suggestions/comments from media expert validator I. Researchers continued the validation of media experts II to get a percentage of 96% with very feasible criteria. Media expert validation includes 3 aspects of assessment, namely media efficiency assessment, media accuracy, and design. First, the assessment of media efficiency, in the packaging of e-books has adjusted images, color combinations, and illustrations that are harmonious, attractive background color composition, suitability of the type of font used and font size that is clear and easy to read, in each material description added appropriate images, and commensurate image sizes make it easier for students to learn the material well. In addition, there are quizzes and learning videos that are very interactive. The quizzes and learning videos presented are clear and interesting, in accordance with the characteristics of grade V students. This is in line with the opinion of Sudarma (2015) that multimedia elements used in e-book materials such as text, images, audio, and video (Geni et al., 2020). Thus, the various features presented in this flipbook e-book have the potential to improve mastery of learning materials. This is possible through the provision of interactive content that captivates attention and varies, thus avoiding boredom in the learning process. In addition, users (Rosyidah et al., 2023).

Furthermore, the analysis of linguist assessment I received a percentage of 54.6% with sufficient criteria with revisions according to suggestions. Based on the linguist's assessment, it is still considered insufficient, so the researcher after making revisions according to the suggestions to perfect the language in the developed media so that it is really feasible to be applied in class V IPAS. After making revisions based on suggestions / comments from the linguist validator I, continued with stage 2 language validation, the results of the assessment received a percentage of 90% with very feasible criteria. Researchers continued the validation of linguists II to get a percentage of 96% with very feasible criteria. Based on the validator's assessment, it states that flipbook media is suitable for use in the teaching and learning process. The validator's assessment confirms that the flipbook media developed has met the eligibility standards for use in the teaching and learning process. This feasibility is based on several language indicators, including: accuracy of grammar use, clarity and readability of text, language suitability for the cognitive development level of grade V students, consistency in the use of terms, and effectiveness of message delivery. In addition, the linguistic aspect also includes the use of communicative and interactive language, as well as the selection of vocabulary in accordance with the IPAS learning context.

Then the results of the teacher response assessment get a percentage of 92.5% with very feasible criteria and student responses get a percentage of 93.8% with very interesting criteria. It can be seen that students really like learning by using flipbook media. Based on the results of the teacher and student responses, it states that flipbook media is suitable for use as learning media.

The preparation of e-books includes various activities that aim to increase students' independence in the learning process. This is in line with the statement that learning materials presented in digital format allow learners to carry out their own learning process. The ease of access through various electronic devices such as computers, laptops or smart phones provides flexibility for students to study the material anytime and anywhere, supporting the development of independent learning skills (Ayuni Musabbitah Hapsari, 2022).

Conclusion

In this research and development, the resulting product is an interactive flipbook named "E-Book Ceria" on Natural Disasters CHAPTER 8 (My Dear Earth, My Poor Earth) grade V with the Hannafin and Peck development model which will be presented in five points, first the material expert validity test score gets an average percentage of 91% with very feasible criteria without having to be revised. Second, the media expert validity test score gets an average percentage of 95.3% with very feasible criteria. Third, the linguist validity test score gets an average percentage of 82.65% with very feasible criteria. Fourth, the teacher response score gets an average percentage of 92.5% with very feasible criteria. Fifth, the student response score gets an average percentage of 93.8% with very attractive criteria. Thus, it can be concluded that the e-book product developed is very feasible to use in the learning process

References

- Ajizah, I. (2021). Urgensi Teknologi Pendidikan : Analisis Kelebihan Dan Kekurangan Teknologi Pendidikan Di Era Revolusi Industri 4.0. *Journal of Chemical Information and Modeling*, 4(1), 25–36.
- Ayuni Musabbithah Hapsari. (2022). *Pengembangan Media Pembelajaran E-Flipbook Berbasis Unity Of Sciences Pada Materi Perubahan Lingkungan*.
- Bell, M. E. (1991). Belajar Dan Mengajar. In *Rajawali*.
- Geni, K. H. Y. W., Sudarma, I. K., & Mahadewi, L. P. P. (2020). Pengembangan Multimedia Pembelajaran Interaktif Berpendekatan CTL Pada Pembelajaran Tematik Siswa Kelas IV SD. *Jurnal Edutech Undiksha*, 8(2), 1. <https://doi.org/10.23887/jeu.v8i2.28919>
- H. Baharuddin, E. N. W. (2007). Teori belajar & pembelajaran. In *Yogyakarta : Ar-Ruzz Media*.
- Hannafin, M. J., Peck, L. L. (1998). The design development and education of instructional software. *Edupedia*, 5(1), 35–44.
- Kuncahyono. (2018). Pengembangan E-Modul (MODUL DIGITAL) Dalam Pembelajaran TEMATIK Sekolah Dasar. *Journal of Madrasah Ibtidaiyah Education*, 2(2), 219–231.
- Kurniawan, D. A., & Anandari, Q. S. (2019). *Digitalization of Ethno Constructivism Based Module for Elementary School Students*. 25(1), 33–41.
- Permendikbudriset Indoneasia. (2022). Peraturan Menteri Pendidikan, Kebudayaan, Riset, dan Teknologi Nomor 13 Tahun 2022 tentang Perubahan Atas Peraturan Menteri Pendidikan dan Kebudayaan Nomor 22 Tahun 2020 tentang Rencana Strategis Kementrian Pendidikan dan Kebudayaan tahun 2020-2024. *Jdih.Kemendikbud.Go.Id*, 1–242.
- Putra, I. K. D., & Suniasih, N. W. (2021). Media Diorama Materi Siklus Air pada Muatan IPA Kelas V Sekolah Dasar. *Jurnal Imiah Pendidikan Dan Pembelajaran*, 5(2), 238. <https://doi.org/10.23887/jipp.v5i2.32878>
- Rahmadi. (2011). Pengantar Metodologi Penelitian. In *Antasari Press*. [https://idr.uin-antasari.ac.id/10670/1/Pengantar Metodologi Penelitian.pdf](https://idr.uin-antasari.ac.id/10670/1/Pengantar%20Metodologi%20Penelitian.pdf)
- Rosyidah, F., Susantini, E., Puspitawati, R., & Nursanti, A. (2023). Development of an E-Book Based on Local Wisdom of Fish Ponds in Gresik to Train Scientific Reasoning Skills. *JPPS (Jurnal Penelitian Pendidikan Sains)*, 192–206. <https://doi.org/10.26740/jpps.v12n3.p192-206>
- Saputro, B. (2017). Manajemen Penelitian Pengembangan (Research & Development) bagi Penyusun Tesis dan Disertasi. In *Journal of Chemical Information and Modeling* (Vol. 53, Issue 9).
- Sugiyono. (2017). Metode Penelitian Kuantitatif, Kualitatif, dan R&D. In *Alfabeta*.
- Tegeh, I. M. (2014). Model Penelitian Pengembangan. In *Graha Ilmu*.

Tim Peneliti Pendidikan Agama dan Keagamaan Jakarta. (2019). *Panduan Penyelenggaraan Madrasah Digital*. 1-41.