

DEVELOPMENT OF E-MODULES BASED ON FLIPBOOKS WITH VARIOUS OCCUPATION THEMES FOR CLASS IV STUDENTS

Maratul Qiftiyah
STIT Darul Fattah Bandar Lampung
maratulqiftiyah@gmail.com

Abstrak

Penelitian ini bertujuan untuk mengetahui cara pengembangan e-modul pembelajaran tematik berbasis flipbook, mengetahui kelayakan e-modul pembelajaran tematik berbasis flipbook, dan mengetahui respon pendidik dan peserta didik terhadap penggunaan e-modul pembelajaran tematik berbasis flipbook. Penelitian ini menggunakan jenis penelitian dan pengembangan dengan model ADDIE. Berdasarkan analisis kebutuhan pendidik dan peserta didik disimpulkan bahwa peserta didik memerlukan e-modul yang peneliti kembangkan. E-modul pembelajaran tematik berbasis flipbook divalidasi oleh ahli media dan ahli materi. E-modul pembelajaran tematik diujikan kepada 25 siswa kelas IV SDN Cepoko. E-modul pembelajaran tematik dihasilkan melalui tahapan yaitu analisis, perancangan, pengembangan, implementasi, dan evaluasi. Hasil validasi ahli materi dilakukan sebanyak dua kali, diperoleh skor keseluruhan sebesar 90% dengan kriteria “sangat valid”. Sedangkan hasil validasi ahli media yang dilakukan sebanyak dua kali memperoleh total skor 87% dengan kriteria “sangat valid”. Hasil uji coba angket respon 25 orang siswa kelas IV memperoleh skor sebesar 84% dengan kriteria “sangat praktis”, sedangkan hasil penilaian yang diberikan oleh pendidik memperoleh rata-rata skor persentase sebesar 94% dengan kriteria “sangat praktis”.

Kata kunci: e-modul, tematik, flipbook

Abstract

This research aims to find out how to develop flipbook-based thematic learning e-modules, determine the feasibility of flipbook-based thematic learning e-modules, and find out the response of educators and students to the use of flipbook-based thematic learning e-modules. This research is a type of research and development using the ADDIE model. Based on the analysis of the needs of educators and students, it was concluded that students need the e-learning modules that researchers have developed. Flipbook-based thematic learning e-modules are validated by media experts and material experts. Thematic learning e-modules were tested on 25 class IV students at SDN Cepoko. Thematic learning e-modules are produced through stages, namely analysis, design, development, implementation, and evaluation. The results of validation by material experts were carried out twice, obtaining an overall score of 90% with the criteria "very valid". Meanwhile, the results of validation by media experts which were carried out twice obtained a total score of 87% with the criteria "very valid". The results of the trial from the response questionnaire of 25 class IV students obtained a score of 84% within the "very practical" criteria, while the assessment results given by educators obtained an average percentage score of 94% within the "very practical" criteria.

Keywords: e-modules, thematic, flipbook.

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INTRODUCTION

Developing science and technology in the era of industrial revolution 4.0, the role of technology is increasingly expanding in various fields including education. Anyone who plays a role in education must keep up with technological advances. Teachers must be technologically literate, but students must follow existing technological developments. Revolution 4.0 will integrate intelligent technology that connects various areas of human life, including the world of education. As traditional methods are increasingly abandoned, teachers must be able to utilize technology for learning in schools. Learning in the 21st century is an era of learning characterized by the development of digital information. This is considered an industrial revolution, especially in the information industry (Arifin & Retnawati, 2015; Faridah Hayati, 2020; Qiftiyah, 2023). Therefore, learning trends must be adapted to acquire the skills needed in the 21st century. The rapid development of science and technology has caused changes in thinking patterns in learning which are marked by changes in curriculum, media, and technology. Apart from that, educators must also pay attention to the learning tools used during teaching and learning activities.

Device learning is an important part of learning activities. Learning tools as tools

that teachers use in the learning process, such as student books, teacher books, syllabi, semester programs, lesson plans, worksheets, test results or assessment questions, learning media, and learning evaluation questions (Trianto, 2015). The learning tools used for learning are prepared and developed by teachers and education experts. The creation of learning resources (in the form of curriculum, teaching materials, media, lesson plans, LKPD) can be developed according to the needs and abilities of each student at school. Developing learning tools for students in rural areas is different from students in urban areas. Therefore, learning tools are all learning tools used by educators in implementing teaching and learning activities in the form of curriculum, semester programs, lesson plans, teaching materials, student activity sheets (LKPD), learning assessments, etc. Teaching materials must be interactive to bring out the unique appeal of using current technology. This is in line with the statement by (Prastowo, 2015), that the word “interactive” means interaction, reciprocity, or mutual activity. Therefore, interactive teaching materials can be interpreted as active teaching materials. This means that it is designed to be able to command the user to carry out an activity. One example of interactive teaching materials is technology-based learning modules.

Technology-based learning modules cannot be separated from 21st-century learning, because they are one of the prerequisites for developing learning skills. To keep up with technological developments, students must also learn how to use technology appropriately and correctly in everyday life. The role of the teacher is no longer the only source of learning information, but to be a facilitator, motivator, and inspiration for students in finding and using learning resources through digital advances. 21st-century learning must be able to produce a generation of Indonesians who can navigate advances in information and communication technology in their lives (Chairunisa & Zamhari, 2022; Octalia et al., 2021; Qiftiyah, n.d.; Saputra, 2016). There are five very important elements in the learning process: objectives, materials, methods, media, and learning assessment. The use of learning modules should be considered in every learning activity. However, in reality, it is still often ignored for various reasons, such as low student participation, which causes a lack of student understanding of the material. As research (Damayanti & Perdana, 2023) states validity is obtained from the assessment of material experts 93.75%, language experts 87.5%, teaching material design experts 93.75%, and learning design 95%. Effectiveness was obtained from observing teacher activities with a

percentage result of 95%, observing student activities with a percentage result of 92.26%, and classical completeness of student learning outcomes tests with a percentage result of 100%. Interest was obtained from the teacher response questionnaire with a percentage of 87.5% and the student response questionnaire with a percentage of 94.64%. Based on the research results, it can be concluded that the development of thematic learning e-module teaching materials (EMOTIK) is considered valid, effective, and interesting so that it can be used in learning.

Therefore, this research (Halim et al., 2023) states that when researchers use flipbook-based e-module media to teach learning material, the research results show that students' digital skills increase. Data results based on material experts were 91.33% in the "very good" category, 86.66% in the "very good" category for media experts, and 80.50% in the "very good" or "very useful" category for linguists. The first product trial was carried out on a small scale by 7 students and obtained results of 88.56% points which were included in the "very good" category. In addition, a large-scale product usage test was carried out by 29 students and 94.68% of their scores were in the "very good" category. Therefore, it is necessary to support scientific competence in learning. This includes the use of educational

materials that contain aspects of scientific competence. Teachers use teaching materials as learning tools for students to acquire learning skills and significantly reduce paper consumption, one of which is e-modules which are very practice-oriented and allow students to learn independently. The development of teaching materials itself is defined as repairing, editing, and re-creating existing materials as well as adapting them to learning needs (Irmawati et al., 2021; Qiftiyah, 2019; Riskynianyo et al., 2024; Rohmaini et al., 2020). E-modules can be integrated into a technological medium that can provide attractiveness, namely in the form of a digital flipbook. Digital flipbooks make electronic module learning more interactive, effective, and interesting (Damayanti & Perdana, 2023; Nuha et al., 2021; Riskynianyo et al., 2024). Based on this description, new innovation is needed, namely *Development E-module Based on Flipbook Themes of Various Jobs for Class IV Students*.

METHOD

Research and development of thematic learning e-modules using the flipbook application using the ADDIE model. The ADDIE model is a term that is often used to describe a systematic approach to learning development. The ADDIE model in this research uses a model developed by Dick and Carry which has several stages, namely:

Analysis, Design, Development, Implementation, and Evaluation.

RESULTS AND DISCUSSION

The results of development research carried out by researchers at SDN Cepoko produced thematic learning e-modules using the flipbook application which has been validated by experts, and educational practitioners and has been tested on students. The development of thematic learning e-modules using the flipbook application was carried out using the ADDIE development model, which includes the analysis, design, development, implementation, and evaluation stages. The product developed has gone through the following steps:

1. Analysis Stage (Analysis)

The analysis stage activity is to carry out an analysis regarding the need for innovation in learning module development, feasibility, and various needs for developing new learning modules so that the product created is feasible and meets the objective requirements. The analysis required includes analysis of student needs, material analysis, and curriculum analysis. The results of the analysis phase are discussed below:

a. Analysis of student needs

Based on observations made by researchers in class IV of SDN

Cepoko, it is known that students tend to have low learning motivation, especially in thematic subjects, this is because students think that the learning modules used during the learning process are less interesting and boring. Based on these results, researchers saw that class IV students at SDN Cepoko preferred and needed interesting learning modules.

b. Material analysis

Material analysis is used to determine the material in research. Thematic material was chosen because it was considered that students still had difficulty understanding the material. So that basic competencies and learning indicators are analyzed to start designing learning e-modules assisted by the flipbook application.

c. Curriculum analysis

The results of the curriculum analysis used by SDN Cepoko are the 2013 curriculum (K13) and the material chosen in developing learning modules by K13 is thematic material.

2. Design Stage (Designing)

After carrying out initial research and gathering information, the next stage is the design stage which includes:

a. Thematic learning e-module design

The results of preparing the learning module framework are used as a reference in developing the content of

the entire learning module by paying attention to the sequence which includes the outline of the learning module and the systematic preparation of the material (Prastowo, 2016). The initial planning for thematic learning e-modules is as follows:

1) The cover section is entitled Learning E-module on Various Occupation Themes

2) The content section includes:

a) Foreword

b) Core competency

c) Basic competencies

d) Learning objectives

e) Material

f) Question

3) Final part

The final section contains a summary, developer information, and reference sources.

b. Research instrument design

The research instrument is used as a measuring tool to determine the quality of the products developed by researchers. The research instruments are instruments measuring product validity, product practicality, and questionnaire instruments for students based on responses to the learning modules developed.

1) Instrument to measure product validity

The instruments for measuring product suitability are designed into two, namely instruments for measuring the validity of learning modules in the form of validation sheets from media experts, material experts, and practicality sheets for learning e-modules assisted by the flipbook application. Each sheet measures the quality of product validity based on content aspects, linguistic aspects, cover design aspects, and the content of the learning module.

2) Student response questionnaire

Student questionnaires are used to find out how well students respond to the learning modules developed by researchers. The student response questionnaire was filled out based on the attractiveness of the appearance, design, interests, language, and students' interest in thematic learning e-modules using the developed flipbook application.

3. Development Stage (Development)

After the thematic learning e-module is designed, the next stage is the development stage. The e-module developed in this research was created or designed using the flipbook application. Making thematic learning e-modules using the flipbook application uses the ADDIE development model.

4. Implementation Stage (Implementation)

This stage is carried out after the thematic learning e-module using the flipbook application has been validated by experts. In the next implementation stage, the learning e-module was tested on thematic educators and 25 class IV students at SDN Cepoko. The researcher directly introduced thematic learning e-modules using the flipbook application that the researcher developed for educators and 25 students. Then, after carrying out learning using thematic learning e-modules using the flipbook application which was said to be valid by the validator, the researcher also gave response questionnaire sheets to students and educators. This aims to determine the practicality of thematic learning e-modules using the flipbook application that researchers developed after carrying out the learning process.

5. Evaluation Stage (Evaluation)

The final stage of the ADDIE development model is the evaluation stage. The evaluation stage in question is the evaluation of the implementation stage. Suggestions and input from both validators, educators, and students became evaluation material which was then used to improve the thematic learning e-module using the flipbook application that the researcher developed.

Validation Results

The validation results obtained from the validators are used to determine the validity of the product that the researcher is developing (Norsanty & Chairani, 2016). In this research, two aspects are validated, namely the material aspect and the media aspect. So the validation stage involves four validators, namely two material experts and two media experts. The results of the validator are presented in the following data:

1. Product validation results

a. Material expert validation

At this stage, the validator provides suggestions and input for improving thematic learning e-modules using the flipbook application that the researcher developed. In this material validation stage, the validator provides assessments and suggestions as well as input to improve the shortcomings of the learning e-module assisted by the flipbook application. In this research, the material experts who validated the thematic learning e-module using the flipbook application were Mrs. Yanti, M.Pd., and Mrs. Fitria, S.Pd. This validation stage by material experts was carried out to obtain score results for thematic learning e-modules using the flipbook application which are then explained in Table 1 below:

Table 1 Material Expert Validation Results

No	Assessment Aspects	Item	Score	
			Validator 1	Validator 2
1	Content aspect	1	4	5
		2	4	4
		3	5	5
		4	5	4
		5	4	5
		6	4	5
		7	5	4
		8	4	5
		9	4	4
2	Language aspect	10	5	5
Amount			44	46
Total number			88%	92%
Average			90%	
Criteria			Very Valid	

The product validation stage by material experts is carried out by analyzing the product. The percentage of validation results is calculated based on the score of each answer from the material expert. In this assessment, there are 10 statements with 2 aspects, namely the content aspect and the linguistic aspect. In the questionnaire that was given to material experts, 5 assessment scales were used and the maximum score was 50 to get the total percentage. In the assessment stage by material experts, researchers obtained validation results from material experts with an overall score of 90% with the criteria "very valid".

b. Media expert validation

At this stage, the validator provides suggestions and input to improve the thematic learning e-module that the researcher developed. Media validation is

carried out to determine the feasibility and shortcomings of the appearance of the product being developed. In this research, the media experts who validated the thematic learning e-module using the flipbook application were Mr. Indra Surya, M.Pd., and Mr Andi Prasetya, S.Kom. The validation stages by media experts were carried out to obtain the results which are then explained in table 2 below:

Table 2 Media Expert Validation Results

No	Assessment Aspects	Item	Score	
			Validator 1	Validator 2
1	Display feasibility	1	4	4
		2	4	5
		3	4	4
2	Feasibility of presentation	4	5	4
		5	4	5
		6	5	5
		7	4	4
		8	4	4
		9	5	4
		10	4	5
Amount		43	44	
Total number		86%	88%	
Average		87%		
Criteria		Very Valid		

The product validation stage by media experts was carried out twice by analyzing the data obtained. The percentage of validation results is calculated based on the score of each answer from media experts. In this assessment, there are 10 statements with 2 aspects, namely the appropriateness aspect of appearance and the appropriateness aspect of presentation. In the questionnaire that has been given to media experts with 5

rating scales and a maximum score of 50 to get the total percentage. In this assessment stage by media experts, researchers look for the percentage of each aspect and the overall percentage. So the validation results from media experts get an overall score percentage of 87% with the criteria "very valid".

2. Product revision results

At this stage, the validator provides suggestions and input for better development of learning modules assisted by the flipbook application. In this case, there are several suggestions that the validator gives to the researcher regarding the product results that the researcher will later use in learning.

a. Revisions and material expert suggestions

The product validation stage is carried out by material experts. The assessment carried out by material experts has 2 aspects, namely the content aspect and the language aspect with a total of 10 questions. The suggestions and input given by media experts to researchers are as follows:

Table 3 Suggestions and Input from Material Expert Validators

Validator	Suggestions and Feedback
Mrs. Yanti, M.Pd.	1. Material about work needs to be added
	2. Add thematic material
Mrs. Fitria, S.Pd.	-

The results of validation by material experts who provide suggestions and input on the thematic learning e-modules using the flipbook application that the researchers developed and will later be used as a reference for improving the thematic learning e-modules using the flipbook application so that they are better and can be used as thematic learning e-modules. The following is a revised product image related to learning objectives:



Figure 2. Revised product design

b. Revisions and suggestions from media experts

In the validation stage of the e-module, thematic learning using the flipbook application was carried out by media experts. The assessment carried out by media experts has 2 aspects, namely the appearance suitability aspect and the

presentation suitability aspect with a total of 10 questions. In the product validation process, media experts did not provide revisions or suggestions for improvement, therefore thematic learning e-modules using the flipbook application can be used for the next stage.

3. Test Results

a. Student response

Thematic learning e-module products using the flipbook application have been validated and then revised by researchers and declared feasible by material expert validators and media experts. In this case, the thematic learning e-module using the flipbook application was tested at SDN Cepoko with a small group trial of 25 students and also with thematic subject educators. This trial was carried out to determine student responses and educators' responses to the learning module assisted by the flipbook application, so students were given an assessment sheet related to the use of the learning module. This assessment is reviewed from the appearance and technical aspects. The following are the results of data processing obtained from student response questionnaires using small group trials which were then analyzed in percentage form. The results of the data analysis are presented in table 4 below.

**Table 4 Results of Student Response
Assessment Sheet**

No	Respondent	Score	Criteria
1	Student 1	45	Practical
2	Student 2	40	Practical
3	Student 3	38	Practical
4	Student 4	44	Very Practical
5	Student 5	39	Practical
6	Student 6	41	Very Practical
7	Student 7	40	Practical
8	Student 8	40	Practical
9	Student 9	43	Very Practical
10	Student 10	45	Very Practical
11	Student 11	40	Practical
12	Student 12	40	Practical
13	Student 13	41	Very Practical
14	Student 14	50	Very Practical
15	Student 15	42	Very Practical
16	Student 16	40	Practical
17	Student 17	46	Very Practical
18	Student 18	43	Very Practical
19	Student 19	43	Very Practical
20	Student 20	41	Very Practical
21	Student 21	37	Practical
22	Student 22	40	Practical
23	Student 23	43	Very Practical
24	Student 24	44	Very Practical
25	Student 25	45	Very Practical
Total Score		1050	
Percentage		84%	
Category		Very Practical	

Based on the research results, the assessment of the results of the student response questionnaire that was distributed showed a percentage of 84% so thematic learning e-modules using the flipbook application were in the "Very Practical" category.

b. Educator response

E-module thematic learning using the flipbook application is not only tested on students but is also tested on thematic subject educators, namely Mrs. Amrina, S.Pd. This trial was carried out to determine educators' responses to

thematic learning e-modules using the flipbook application that researchers developed. To find out educators' responses regarding the use of learning e-modules, educators were given an assessment sheet related to the use of learning e-modules assisted by the flipbook application. The following are the results of data processing obtained from the teacher response questionnaire using trials which were then analyzed in the form of percentages. The results of the data analysis are presented in table 5 below.

**Table 5 Results of Educator Response
Assessment Sheet**

No	Observed aspects	Score
1	Clarity of content	5
2	Clarity of information	5
3	Attractive appearance	5
4	Simple material	4
5	Ease of use	5
6	Material suitability	5
7	Reference suitability	4
8	Language is easy to understand	5
9	Economic value	4
10	Usefulness	5
Total		47
Percentage		94%
Category		Very Practical

In table 5 it is known that the results of the practicality assessment by thematic subject educators obtained a score with a total score of 47 out of a maximum score of 50 with a percentage of 94% and the criteria "very practical". For this reason, it can be concluded that the thematic learning e-module using the flipbook application

developed is very interesting and easy to use.

CONCLUSIONS

The process of developing thematic learning e-modules assisted by the flipbook application was developed by researchers based on the stages in the ADDIE development model. The validity of the thematic learning e-module is validated by material experts and media experts. The results of validation by material experts were carried out twice, obtaining an overall score of 90% with the criteria "very valid". Meanwhile, the results of validation by media experts which were carried out twice obtained a total score of 87% with the criteria "very valid". The results of the trial from the response questionnaire of 25 class IV students obtained a score of 84% within the "very practical" criteria, while the assessment results given by educators obtained an average percentage score of 94% with the "very practical" criteria.

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