


Digitalization of Ethno Constructivism Based Module for Elementary School Students

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ARTICLE INFO	ABSTRACT
<p>Article history Received January 20, 2019 Revised February 21, 2019 Accepted May 9, 2019</p>	<p>This research develops e-module teaching materials by using a digitalized book application based on ethnos constructivism and discerns students' responses to the e-modules. We employed the ADDIE model (Analysis, Design, Develop, Implement, and Evaluate) to create the books. The ADDIE model consists of five steps, namely (1) introduction, (2) planning, (3) development, (4) implementation, and (5) evaluation. The subjects of this study were 21 fifth-grade students at elementary schools 112/I. The results of this study captured that the product was favored by most of the students with percentages of interest (72.73%), motivation (77.27%), and perception (63.6%).</p>
<p>Keywords E-modul Etnokonstruktivisme</p>	<p>Penelitian ini bertujuan untuk mengembangkan bahan ajar e-modul dengan menggunakan aplikasi digitalisasi buku berbasis etnokonstruktivisme. Untuk mengetahui respon siswa terhadap bahan ajar e-modul dengan menggunakan aplikasi digitalisasi buku. Metode pada penelitian ini menggunakan model ADDIE (<i>Analyze, Design, Develop, Implement, and Evaluate</i>). Model ADDIE terdiri dari lima langkah yaitu (1) pendahuluan; (2) perencanaan; (3) pengembangan; (4) pelaksanaan; dan (5) evaluasi. Subjek dari penelitian ini adalah siswa kelas V SD Negeri 112/I Perumnas dengan teknik pengambilan sampel yaitu total sampling sebanyak 21 siswa. Hasil angket minat dari penelitian ini menunjukkan bahwa modul elektronik etnokonstruktivisme menggunakan aplikasi digitalisasi buku memiliki nilai dominan minat 72,73%, motivasi 77,27% dan persepsi 63,6%.</p> <p>This is an open access article under the CC-BY license.</p> 

I. Introduction

Education is a process of exploring knowledge, skills, and habits in life. Education is basically a conscious effort to develop the potential of human resources, especially students, which is done by guiding and facilitating their learning activities (Astalini et al., 2018). Education is not only a medium to pass down culture to the next generation but is also expected to be able to change and develop the nation's lifestyle for the better. Education is also a long-term investment that we must prepare. So that we have a better life in the future (Nafiati, 2017)

Nowadays, globalization provides many influences on education in Indonesia to better

and developing. The influence of globalization is felt using ICT in teaching and learning. The concepts of globalization, nation-states, and education are closely interrelated. As already mentioned, globalization has brought a total rethinking of political and social structures, economic relations and cultural values (Parjanadze, 2009) As educators, and teachers have a significant role in overcoming this, teachers must be able to filter foreign cultures into student thought patterns.

The teacher who makes great activation of his roles in classroom management and enriches learners' knowledge (Ibrahim, 2016). The teacher must also be able to process the development of ICT in a positive direction so

that students do not forget the original culture of Indonesia as a national identity. Teachers in a learning process are required to be able to create an effective learning environment and be able to manage the class, so that prospective teachers get optimal learning outcomes (Asrial et al. 2019).

ICT applied in education in Indonesia aims to improve the quality of Indonesian education. ICTs make an acquisition of knowledge more accessible, and concepts in the field of learning also determine when involving students in the application of ICTs (Fu, 2013). The teacher must also be able to teach students how to operate ICT. According to (D. Darmaji et al. 2018), "Quality teachers do have not only knowledge but also have skills." Technology-based education is one alternative that can be used by teachers in the learning process. Content that can be enjoyed more easily, and whatever is available can use learning resources effectively or can activate the content themselves at home or school (Kaewkiriya, 2013). E-learning can be used as a learning medium so that it can facilitate teachers in delivering learning material in class. Computers, audio-visual learning media, are considered to have the advantages of learning rather than using print media visual (Darmaji et al., 2019).

Learning media is an important part of learning (Susanti, 2015). Besides being an essential part of learning, instructional media is also an inseparable part of the teaching and learning process. The purpose of utilization and learning resources in class is to assist the teacher with the presentation and transmission of educational content and the achievement of educational objectives while aiding the students in acquiring knowledge and profiling different abilities and values (Bušljeta, 2013). Examples of learning media commonly used are print and non-print media. The use of print media, such as books, is widely used in schools to support the learning process. Compared to print media, the use of non-print media is still relatively small due to the lack of non-print media development.

Learning can succeed well if it is implemented using appropriate media (Ratminingsih, 2018). Choosing the right media is believed to increase student participation and success in learning. As stated in Law Number 20 Year 2003 concerning the National Education System that education itself has the aim to develop the potential of stu-

dents to become human beings who believe in and fear God Almighty, have noble, healthy, knowledgeable, capable, capable, creative, independent, and be a democratic and responsible citizen. Education is an effort to develop student potential (Fonda & Sumargiyani, 2018), meaning that through education, the potential and talents of students can be developed.

To develop students' potential, students must be active in the learning process. The activity can be achieved by providing an interesting and fun learning media. In line with the opinion (Doriza & Sunawar, 2016) that by choosing interesting learning resources and fun can increase motivation and interest in learning so that learning objectives will be achieved. The use of instructional media must be in accordance with the level of student needs. With the selection of appropriate learning media, it is expected to improve the learning process and the formation of enjoyable learning so that it triggers an effective learning process. According to (Astalini et al., 2019), excitement in learning is an expression of student emotions that are intrinsically related to student motivation, learning, and school performance at school. Learning media is a strategic thing in the framework of realizing optimal learning processes (Juanda, 2012). The learning process in the 2013 curriculum places Information Technology as a learning tool integrated into all subjects (Sampurno et al., 2015). Increasingly sophisticated technology can be utilized as a learning medium. Technological progress can change people's life patterns (Budiman, 2017). Humans have made use of IT in all their activities (Manongga et al., 2009), almost all human activities are assisted by technology so that humans make technology as an inseparable part.

The development of advances in information technology and communication today has had a major influence on aspects of life, including the world of education (Budiana et al., 2015). The implementation of the 2013 curriculum emphasizes the use of Information Technology for learning media. Learning must be in line with technological developments that have penetrated the world of education. History Information technology itself comes from the world of education. Sophisticated and IT-based learning media is a form of tangible evidence that the world of education is inseparable from the development of IT (Manongga et al., 2009). In Indonesia, the

use of multimedia as a learning tool is still limited in number. That is caused by the limited application of teaching materials that resemble real examples commonly used by teachers and students in teaching and learning activities. Teaching materials that are often used in the learning process, in general, are print media. In the use of print media such as books, there are some limitations, including the material that is loaded can only be text and images.

If students' attention is lacking in the learning process then its effectiveness is also like that, in order to attract students' attention, innovation is needed to develop the learning media used by the school in the teaching-learning process optimally. There is a positive impact on learning using teaching materials (Wibowo & Pratiwi, 2018). Therefore, it is necessary to hold teaching materials that make the learning process enjoyable. One of them is an electronics-based module that is attractively packaged. An electronic module is a form of presentation of independent teaching materials that are presented in electronic format (Sugianto et al., 2013). The advantages of electronic modules can present material with a combination of media such as audio, text, images, and video (Yoan, 2015).

One application that can be used to compile electronic modules is digitizing books. Book digitization software can change the appearance of PDF files to be more interesting as a book. Book digitization is software designed to convert PDF files to flip page forms. According to (Mulyaningsih, N & Saraswati, D, 2017), Book digitization is a reliable software that is designed to convert PDF files to turning pages of digital publications or digital books. The advantages of this application are (1) being able to provide a flip effect module or a reversible page; (2) making a module with this application is very easy; (3) module display is not only in the form of text and images, but audio and video forms can also be combined in presenting material; (4) the product can be published in the SWF (Shock Wave Flash), HTML (Hypertexts Markup Language) format if it is to be published on the website.

Based on the above problems, this study aims to (1) describe ethno constructivism-based electronic modules using Pro book digitization software; (2) find out the quality and feasibility of electronic modules based on the Pro Book digitalization in the learning pro-

cess in class. The research aims at how students' perceptions, interests, and motivations in using electronic modules in the learning process.

II. Method

This study was adopted from (Branch, 2009), which uses the ADDIE (Analyze, Design, Develop, Implement, and Evaluate) development model. According to (Branch, 2009), the stages of developing the ADDIE model consist of five steps, namely (1) introduction, (2) planning, (3) development, (4) implementation, and (5) evaluation.

First, the Analysis phase (Analyze) is the first stage before developing a product. At this stage, the needs and objectives of learning are analyzed for what will be learned by students in the form of conformity KI, KD GPA, which refers to the 2013 curriculum. Based on the needs analysis, curriculum and students have not found any teaching material that utilizes technology in learning—relating to the problems and characteristics of students, hardware, and software (Jayanti & Wiratomo, 2017). Second, the design stage (Design) makes a storyboard consisting of the preparation of the contents of electronic modules such as materials, stories, crafts, and assessment instruments. According to (I. P. Sari, 2018), this activity is a systematic process known as the term design. Third, the Development stage (Development), (I. P. Sari, 2018) this activity contains the realization of product design. After the e-module is designed according to the design, the things needed are looking for learning material that will be presented in the form of pictures, videos, and audio that can attract the attention of the student participants, when the electronic module has been completed, it will be consulted with media experts and material experts to be validated so that researchers can get input. Fourth, the implementation phase (Implementation) The implementation phase is the stage of media testing in schools (Amirullah et al., 2017) after the products developed pass the revision stage and are appropriate to give to students. The electronic module is given to students in grade V of the Perumnas 112/I Elementary School, which amounts to 21 students to find out the practicality in the electronic module and see students' motivation to use the electronic module. Fifth, the Evaluation stage, which is the final stage of the ADDIE model. This stage is

the stage of evaluating electronic modules to get suggestions from electronic module users so that they can be revised again. An evaluation phase is carried out to assess the processes and products made (W. Sari, 2017).

The sampling technique in this study is total sampling, which is a way of collecting data by taking elements or members of the population as a whole to be investigated (Nasution, 2017). The sample used was grade V Perumnas 112/I Public Elementary School, Batanghari Regency. The study was conducted in the 2018/2019 school year with 22 students showed in Table 1.

Table 1. Level of Questionnaire Perception and Students' Interest in E-Modules

Interval Score of Perception	Interval Score of Interest	Interval Score of Motivation	Criteria
20.0-36.1	20.0-36.1	20.0-36.1	Very Bad
36.1-52.0	36.1-52.0	36.1-52.0	Not Good
52.1-68.0	52.1-68.0	52.1-68.0	Good
68.1-84.0	68.1-84.0	68.1-84.0	Enough
84.1-100.0	84.1-100.0	84.1-100.0	Good
	100.0		Very Good

In this study, researchers used a questionnaire to see the interests, motivations, and perceptions of students regarding the ethno constructivism e-module. In the questionnaire used, there are several statements regarding students' opinions on students' interests, motivations, and perceptions of e-modules. Each questionnaire consisted of 20 statements. The scale used in this study is a Likert scale, which consists of five scales namely SB = Very good (5), B = Good (4), C = enough (3), TB = Not Good (2), SB = Very Bad (1).

The product trial phase is a very important part of this development research. The product trial phase is carried out after the product design is complete; it is intended to see whether the product made has the feasibility to be used or not. Data obtained from questionnaires were analyzed using qualitative descriptive statistics. The results of the score are validated, and the average is searched and then converted to determine the validity and feasibility of e-module teaching materials by using the book digitization application. The analysis technique used is the statistical analysis of product trials using SPSS 22 statistical software to see the tendency of the percentage of product user ratings of the appearance and

content of the product that has been developed.

Electronic modules using Pro book 4.0 Digitization software, before the module's contents are converted into text with Ms. Office Word and cover pages, are created with Adobe Photoshop software. The e-module file is saved in PDF format and then imported into the book Digitization software.

III. Results and Discussion

The results of the development carried out is to produce e-module teaching materials by using the Pro book digitalization application as teaching material supporting the learning process for elementary school students. The electronic modules contain cultural values depicted in the students' cultural norms. The making of modules uses a constructivist approach, so this module is called the ethno constructivism module. Constructivist learning processes support student active participation, knowledge construction, and deep learning, encourage students to think and act independently and foster harvesting learning (Çolak, 2017).

This electronic module contains learning material that is reviewed in terms of culture development of e-modules using the Pro book digitization application. Development products are packaged in PDF (Portable Document Format) format. Ethno constructivism module development is a form of e-learning development so that students are more interested in learning. Electronic modules are made to contain several displays of learning menus, namely learning materials, learning evaluation, craft skills, and assessment of crafts.

A. Homepage (Fig. 1)



Fig. 1. Homepage

B. Core Competence Page

This section covers competencies that should be mastered by the students (Fig. 2).



Fig. 2. Core Competence Page

C. Basic Competence, Indicator, and Learning Objectives Page

This section includes Basic Competence, Indicator, and Learning Objectives designed for the students (Fig. 3).

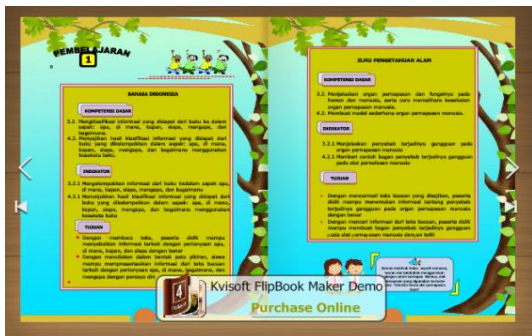


Fig. 3. Basic Competence, Indicator, and Learning Objectives Page

D. Story Page

This section covers ethno science, techno social, ethno mathematics, and ethno linguistics depicted in the story. The story is derived from the local wisdom of Jambi Province (Fig. 4).



Fig. 4. Story Page

E. Evaluation Page

This section covers the story evaluation that is comprised of five questions (Fig. 5).

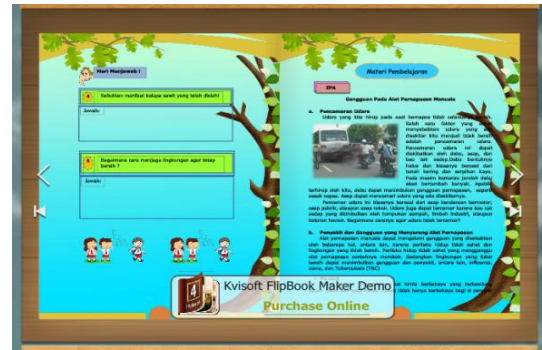


Fig. 5. Evaluation Page

F. Learning Topics Page

This section covers learning topics that are related to the learning competence (Fig. 6).



Fig. 6. Learning Topics Page

G. Learning Evaluation Page

This section covers exercises for the students consisting of five questions (Fig. 7).

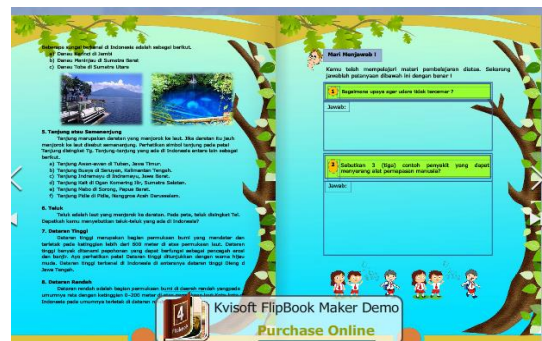


Fig. 7. Learning Evaluation Page

H. Students' Artifact Page

This section covers space for students' artifact enactment (Fig. 8).

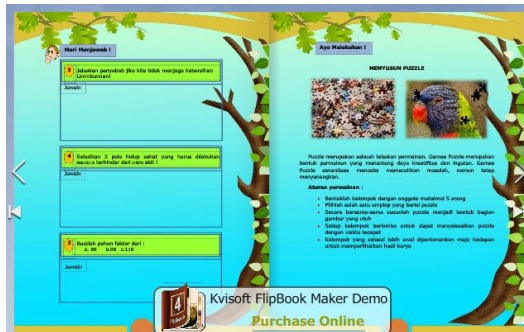


Fig. 8. Artifact page

1. Artifact Assessment Page

This section provides space for artifact assessment (Fig. 9).

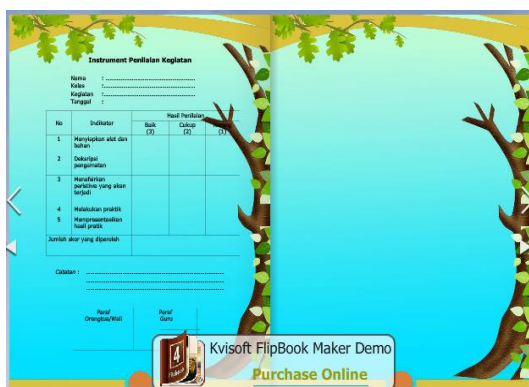


Fig. 9. Artifact Assessment Page

The results of the data from the study using a questionnaire of interests, motivation, and perceptions carried out in grade V of the Perumnas 112/I Elementary School on e-modules using book digitization can be seen in Table 2.

Table 2. Descriptive Statistics of Questionnaire on Interest, Motivation, and Perception

	N	Min	Max	Mean	Stv. Dev
Interest	22	68	91	80.23	5.503
Motivation	22	63	90	76.05	6.237
Perception	22	56	88	68.27	9.755
N Valid	22				

Based on Table 2, the statistical description of the interest questionnaire, the motivation for the e-module, can be seen that the interest data obtained a minimum value of 68, a maximum value of 91, a mean of 80.23, and a Standard Deviation of 5.503. Motivation data obtained a minimum value of 63, a maximum value of 90, a mean value of 76.05, and standard deviation 6.237. While the perception data obtained a minimum value of 56, a maximum value of 88, a mean of 68.27, and Standard Deviation of 9.755. The three ques-

tionnaires were given to the same 22 people (N).

Table 3 shows level of the questionnaire categories of interest given to students for the developed e-modules.

Table 3. Level of Categories of Questionnaire on Students' Interest

Interval Score	Criteria	F	%
20.0-36.0	Very Bad	0	0
36.1-52.0	Not Good	0	0
52.1-68.0	Enough	1	4.55
68.1-84.0	Good	16	72.73
81.4-100.0	Very Good	5	22.72
	Total	22	100

Based on Table 3, the questionnaire level of student interest in e-modules informs that, at the questionnaire level, the criteria of "Very Bad" and "Not Good" is 0 and a percentage of 0% (0 of 22 students). In terms of "Enough" criteria, it is 1 with a percentage of 4.55% (1 of 22 students). In the criteria "Good", the percentage is 72.73% (16 out of 22 students) and "Very Good" is 5 and a percentage of 22.72% (5 of 22 students). Thus, the interest questionnaire was dominated by the "Good" category, with 16 respondents at 72.73%.

Table 4 shows level of motivation questionnaire categories given to students for the e-modules developed.

Table 4. Level of Categories of Questionnaire on Students' Motivation

Interval Score	Criteria	F	%
20.0-36.0	Very Bad	0	0
36.1-52.0	Not Good	0	0
52.1-68.0	Enough	3	13.63
68.1-84.0	Good	17	77.27
84.1-100.0	Very Good	2	9.1
	Total	22	100

Based on Table 4, the level of the students' motivation questionnaire category on e-modules informs that, at the questionnaire level, the criteria of Very Bad and Not Good are 0%, meaning that 22 students did not respond to them. The criteria "Enough" is 13.63% (3 out of 22 students), "Good" is 17 with a percentage of 77.27% (17 of 22 students), and "Very Good" is 2 with a percentage of 9.1% (2 out of 100). Thus, the dominant motivation questionnaire is in the "Good" category with respondents as many as 17 students amounted to 77.27%.

Table 5 shows a questionnaire level of perception given to students of the e-module developed.

Table 5. Level of Categories of Questionnaire on Students' Perceptions

Interval Score	Criteria	F	%
20.0-36.0	Very Bad	0	0
36.1-52.0	Not Good	0	0
52.1-68.0	Enough	14	63.63
68.1-84.0	Good	6	27.27
84.1-100.0	Very Good	2	9.1
	Total	22	100

Based on table 5, the questionnaire level of students' perceptions of the e-module informs that, at the questionnaire level, the criteria of "Very Bad and Not Good" are 0 and a percentage of 0% (no voters). The criteria "Enough" are 16 and a percentage of 63.63% (16 of 22 students). The criteria "Good" is 6 with a percentage of 27.27% (6 of 22 students), and "Very Good" is 2 and a percentage of 9, 1% (2 of 22 students). It can be concluded that the dominant perception questionnaire is in "Enough" category, with 14 respondents was 63.63%.

This study attempts to determine the interests, motivations, and perceptions of Grade V students at Public Elementary School on the use of e-modules based on digitized books in learning from the questionnaire of interests, motivations, and perceptions. Table 3 portrays those 22 respondents who filled out the interest questionnaire showed the highest frequency of 16 with a percentage of 72.73% included in the good category. This frequency shows more than half of respondents give or show a positive interest in the use of e-module learning based on digitizing books in learning. That is, if students show a positive interest response, it will increase students' interest in learning more by using e-module learning based on book digitization. According to (Ariawan et al., 2017), The low interest in student learning can be overcome by including entertainment elements in the developed multimedia. According to (Cholid, A et al., 2016; Nurhasanah & Sobandi, 2016), an interest in learning means that if someone is interested in a lesson, he will have a feeling of interest in the lesson.

Furthermore, from the results of the data in Table 5, of the 22 respondents who filled out the motivation questionnaire showed that the largest frequency of 17 with a percentage of 77.27% included in the good category.

This frequency shows that more than half of the responses responded that the use of e-learning modules based on the Digitalization of books tested was able to motivate students in learning activities. This means that with the e-module learning materials based on digitizing books, students become more motivated in following the learning process. Motivation consists of two types, namely intrinsic motivation and extrinsic motivation (Kurniawan et al., 2019). Based on the statement, there is intrinsic motivation that comes from within the students themselves, and extrinsic motivation comes from outside the students themselves. This means directing the deed to achieve the desired goal. 3) Motivation functions as a driver; it functions as an engine for cars; the size of motivation will determine the speed or slowness of a job (Astalini et al., 2019). According to (Anjani, K et al., 2016), Motivation is essential in determining how much students will learn from a learning activity or how much absorb the information presented to them. According to (Manasia, 2015), Enjoyment in learning is the emotional expression of students intrinsically linked to student motivation to learn, with learning and school performance at school.

From the results of the data obtained in Table 5, from the 22 number of respondents who filled out the perception questionnaire that was distributed showed the highest frequency of 14 with a percentage of 63.63% included in the Fair category. The results of this data indicate students' perceptions of the e-modules tested have received a positive response. This means that the use of teaching materials can provide stimulus to students in learning. According to (Agustami, R et al., 2017), the learning process applied by the teacher initiates the formation of students' perceptions. (Monawati & Elly, 2017; Putro et al., 2017) said that basically, every student gets a different stimulus from outside himself, with the stimulus then processed into a perception.

IV. Conclusion

This research and development produce e-modules using the book digitization application. The model used to develop the module is ADDIE, which consists of five steps, namely Analyze, Design, Development, Implementation, and Evaluation. From the distribution of questionnaires that have been carried out in the Perumnas 112/I State Primary School, it

can be concluded that the results of the analysis obtained from the student interest indicators were obtained in the good category with a percentage of 72.73%. Indicators of student motivation are categorized. Good with a percentage of 77.27%, and subsequently, the results of indicators of students' perception of the category are Sufficient with a percentage obtained of 63.6%.

This e-Module with the ethno constructivism learning approach uses a constructivism approach in the hope of making it easier to understand learning especially for teachers, students, academics in the field of basic education. It is hoped that the development of this e-Module can be combined with a gamification approach so that students can be more motivated and success in learning will be higher for elementary level students.

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