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Development of IPS Content E-wallchart on the Subtema of Ethical Diversity in my Country at the 4th Grade Elementary School

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***Abstract*—The purpose of this research and development is to produce an *e-wallchart* product for social studies on the sub-themes of ethnic diversity in my country that is valid according to material experts and teaching materials experts, practical according to users, and interesting according to students. The development model in this study uses ADDIE. From the validation results of two experts and one user, the product is declared to be very valid and very practical. Meanwhile, the results of product trials are stated to be very interesting. Based on these results, the *e-wallchart* can be used as a companion book to carry out teaching and learning activities.**

Keywords*—*companion book, e-wallchart, flip pdf professional

I. INTRODUCTION

One of the needs fundamental in the process of learning is material to teach. In line with the statement that, Hutama (2016) states that the material resource has a role which is very important in the activity of learning to teach that as a reference for teachers and participants of learners in digging matter of learning. Books are included in the teaching materials used in the learning process. The book is divided into two, namely the main book and the companion book. Books main used in the activities of the day - a day that contains the material subject of learning, while the book companion is used to accompany or complement the book the main (Anggraeni, 2017). So, in the book companion material which served to load the subject of discussion particular. The book is a matter of teaching the form of print, the book companion included in the material resource. Books printed thematic that is used in the learning day - day by participant students included in the book the main due to load some cargo and one theme. The use of language in companion books needs to pay attention to the use of font type and size as well as image arrangement (Magfiroh, 2012).

The development of companion books has several benefits. Rofiah et al wrote that (1) participant students get the material appendages that are not contained in the book the main; (2) can improve the ability to read, listen, listen; (3) insight that obtained the participants students increasingly extensive and increasing (Anggraeni, 2017). With the book companion to facilitate teacher and participant students achieve competencies that have been set, in addition to the participant students, can learn to be independent at home respectively - each in learning online to take advantage of the technology. In this development research, the product contains IPS content on the diversity of ethnic groups in my country. There are differences in social studies learning between high and low grades. Social studies learning for low grades are included in the Indonesian language content, while in high grades it is independent (Utami & Putra, 2017). Studying the material is able to cultivate character flavors want to know the participant students to the diversity that exist in Indonesia to improve the knowledge which is owned.

According to Prastowo, teaching materials consist of books, modules, handouts, worksheets, leaflets, photos, and wallcharts (Indrawati et al 2019). Wallcharts have a special feature that consists of material presented in the form of a chart/series of images that have meaning. Learning materials packaged on wallcharts will help understand the concepts of learning materials that are difficult for students to understand when using textbooks. Sadiman said that the development of wallcharts was adjusted to several criteria in order to produce good teaching materials, namely (1) easy to understand by students; (2) concise and uncomplicated; (3) interesting and

interactive. Fourth grade elementary school students are in the concrete operational stage (Firaina et al, 2019). At this stage, he is able to reason logically using concrete examples (Basri, 2018). Fourth grade elementary school students are happy when learning is felt directly, the teacher prepares learning resources in the form of 3D so that they can participate in Sumantri and Syaodih learning (Haryanti, 2017).

Along with the development of the times, technology in the field of education growing rapidly. Applications *Flip PDF Professional* is software that is attractive to use because it can transform a PDF file into a book digital can flick - turn the page. Design comics, material resources, the catalog of products can be made by utilizing the application of this. This software is able to insert images, audio, and video so that it looks varied. Utilization of technology as an activity of learning has been carried out in Indonesia on the level of education school elementary. According to (Faisal et al, 2020) the participant students in the era now more interested and easier to learn to use the material teaching the use of technology such as smartphones.

Based on the results of interviews conducted with teachers of 4b class regarding the analysis of student needs, information was obtained that the learning carried out was online, meanwhile, students did not master the material on ethnic diversity in my country because the books used were thematic printed books. In offline learning, the teacher has used *wallcharts* and the responses of students are interested, but when online learning the teacher only uses thematic books. So that teachers and students need books in the electronic form to support online learning activities on ethnic and religious diversity in my country. The potential possessed is that all students use *smartphones* in carrying out the learning process, while students who do not have smartphones use their parents' smartphones.

Furthermore, do activities observed in class and school to obtain the information that there are Wifi and LCD schools so that when developing a book electronically can be used, the material in the book thematic that is used in teaching a day - a day in the form of paper on the table so it looks dull and less desirable participant learners, there is wallchart which is made of paper manila but not material diversity of tribal peoples, but the material cycle life butterflies - butterflies and love the environment around, is not there a book companion that is used to support the material diversity of tribal peoples and religions.

Of the deployment questionnaire analysis of the needs of the participant students obtained information that 62, 9 % tired of using books thematic and 85.2% require clarification extra that accompanied the picture and video. Besides that, as much as 70, 4 % of participants students will be eager to learn when utilizing the appliance electronics (smartphone, laptop, computer, or LCD). By reason that based on the analysis of the needs that exist in the field as well as a sense of want to produce a product e-wallchart valid, practical, attractive then takes their research development that is titled Development of E-Wallchart Payload IPS At Subtheme Diversity Tribal Nation In My Country Class IV SDN Bendogerit 01 Blitar City.

II. METHOD

The purpose of this development research is to produce valid, practical, and attractive products so that the research model used is ADDIE with stages including, analysis, design, development, implementation, evaluation. The reason for using this model is because in each stage there is an evaluation so that it can achieve the expected goals. The following is an overview of the stages of the model.

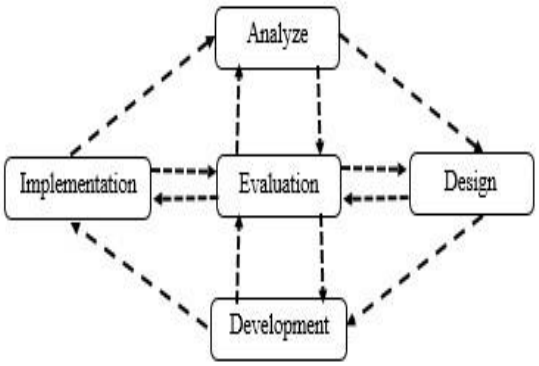

Fig. 1. ADDIE research model

The first stage is an analysis of the needs of students which is carried out in three stages, namely interviews, observations, and distributing questionnaires. The second stage is the design that has five activities: (a) analyze the competence base subtema diversity of tribes tire GSA in Indonesia; (b) determine the content in accordance with the needs of learning activities; (c) developing indicators and learning objectives based on KD; (d) look for material references and practice questions that are in accordance with the objectives that have been developed; (e) compiling an e-wallchart using a professional flip pdf application.

The third stage is development which includes activities to make products, consultation with supervisors, assessments of material experts, teaching materials experts, and users. Furthermore, product evaluation is carried out based on the suggestions and inputs that have been given.

The fourth stage, namely product implementation, aims to measure the level of attractiveness which is carried out by small group trials of 7 students. The comments obtained will be used as an evaluation. Next, a large group trial was conducted with 20 students. The fifth stage is the evaluation carried out to revise the product based on the first stage to the fourth stage so as to obtain results in accordance with research and development objectives.

There are three data collection techniques, namely interviews, observations, and questionnaires. The questionnaire is divided into five, namely the student needs analysis questionnaire, material expert validation, teaching material expert validation, user validation, product attractiveness questionnaire. The qualitative analysis technique is based on suggestions, input, and comments from experts, users, and students in descriptive form. Technique quantitative analysis to test the attractiveness of using the scale *Guttman* in the form of a checklist with two intervals is "yes" with a value of 1 and "no" with a value of 0. Meanwhile, to test the validity and practicality of the product using a *Likert* scale and the following Table 1.

Table 1. Likert Scale

Score	Evaluation
5	Very good
4	Well
3	Enough
2	Not good
1	Not good

Next, processing the data to generate a percentage using two formulas. The attractiveness test data processing uses the formula of (Arikunto, 2010:282). While the validity and practicality tests use the formula of (Akbar, 2015:82).

a. Validity and Practicality Test Formula

$$Vah = \frac{Tse}{Tsh} \text{ x } 100\%$$

Information:

Vah = expert validation

Tse = total score achieved

Tsh = total expected score

b. Attractiveness Test Formula

$$P = \frac{\sum x}{N} \times 100\%$$

Information:

P = Percentage score

$\sum x$ = Total score

N = Total maximum score

The data obtained in the form of percentages are then interpreted based on the categorization in Tables 2, 3, and 4.

a. Validity

Table 2. Categorization Criteria Validity

Achievement Rate (%)	Category	Test Decision
85.01 – 100.00	Very valid	Can be used without revision
70.01 – 85.00	Quite valid	Usable, but needs minor revision
50.01 – 70.00	Not valid	Can be used with major revisions
01.00 – 50.00	Invalid	Cannot be used

b. Practicality

Table 3. Practical Categorization Criteria

Achievement Rate (%)	Category	Test Decision
85.01 – 100.00	Very practical	Can be used without revision
70.01 – 85.00	Practical	Usable, but needs minor revision
50.01 – 70.00	Less practical	Can be used with major revisions
01.00 – 50.00	Not practical	Cannot be used

c. Attractiveness

Table 4. Attractive Categorization Criteria

Achievement Rate (100%)	Categorization	Test Decision
76-100	Very interesting	Can be used without revision
51-75	Interesting	Usable, but needs minor revision
26-50	Less attractive	Can be used with major revisions
0-25	Not attractive	Cannot be used

The e-wallchart product can be declared feasible if the results of validity and practicality get a value of more than 70%, and practicality gets a value of more than 50%. If the results of the percentage have not reached that number, then a revision is needed based on suggestions, input, and comments.

III. RESULTS

The explanation of the results of research and development is contained in the table of validation results of material experts, teaching materials experts, users, and student questionnaires as shown in Table 5.

The results of the feasibility of material expert validation in the form of quantitative data were obtained by 86.6%. If interpreted into table 2, the results of the feasibility calculation are included in the range of 85.01% - 100% with a very valid category. Notes and input in the form of qualitative data were obtained from material experts that the material in the e-wallchart product already contained suggestions and problem solving sentences and was suitable for use. These results can be seen in Table 6.

Qualitative data obtained from teaching materials experts that the e-wallchart product is very interesting, easy to operate, and can be continued to be used in learning activities. These results can be seen in Table

7. Notes and input given by users that the e-wallchart product is practical because it is electronic so it is easy to use anywhere, besides that the product is innovative and in accordance with the conditions of students. These results can be seen in Table 8.

Table 5. Material Expert Validation

No.	Aspect	Rating Indicator	Score
1	Material Suitability	a. Basic competencies in accordance with core competencies b. Indicators according to basic competence c. Learning objectives according to indicators d. The material is in accordance with the learning objectives	4
2	Material Scope	a. The material contains the diversity of ethnic groups in Indonesia b. The material contains the diversity of regional languages in Indonesia c. The material contains the diversity of folk songs in Indonesia d. The material contains the diversity of religions in Indonesia	5
3	Content Compatibility	a. The suitability of the image with the learning material b. Audio according to learning material c. The suitability of the video with the learning material d. Practice questions according to the learning material	4
Total value			13
Percentage		$\frac{13}{15}$ x 100%	86.6%

Table 6. Teaching Material Expert Validation

No.	Aspect	Rating Indicator	Score
1	Form e-wallchart	a. Electronic form b. Completeness of the e-wallchart (cover, instructions for use, materials, pictures, videos, audio, practice questions) c. Can be accessed via a browser on a smartphone/laptop d. File type e-wallchart html	5
2	Content Composition	a. Compatibility of writing color composition with background b. Clear pictures, videos, and audio c. The accuracy of the layout of the writing on the learning material d. The accuracy of the writing size and the type of font used	5
Total value			10
Percentage		$\frac{10}{10}$ x 100%	100%

Table 7. User Validation

No.	Aspect	Rating Indicator	Score
1	Efficient	a. Easily accessible by students b. Learners can understand learning material quickly c. Easy to use in distance learning d. Accessible at school and home	5
2	Effective	a. Pictures, videos, audio help students understand b. Learning materials are conceptualized appropriately and in detail c. The concept of concise learning materials d. Evaluation questions are in accordance with the learning material	4
Total value			9
Percentage		$\frac{9}{10}$ x 100%	90%

Table 8. Small Group Trial

No.	Statement	Max Value	Value earned	Percentage	Validation Value	Attractiveness Criteria
1	The menu display and instructions for use on the e-wallchart are easy for me to understand.	7	6	85.7%	90.4%	Very interesting, can be used without revision.
2	Pictures, videos, and audio help me understand the learning material.	7	6	85.7%		
3	I am enthusiastic about self-study.	7	6	85.7%		
4	I am interested in learning with this e-wallchart.	7	6	85.7%		
5	I love this e-wallchart .	7	7	100%		
6	I like the pictures and the color of the text in the e-wallchart.	7	7	100%		

Quantitative data obtained based on small group trials is 90.4%. Based on Table 4 the percentage of products is in the range of more than 76% and less than 100% and is in the very attractive category. Qualitative data in the form of comments from students are very happy, excited, and enthusiastic about learning to use e-wallcharts that shown in Table 9.

Table 9 . Large Group Trial

No.	Statement	Max Value	Value earned	Percentage	Validation Value	Attractiveness Criteria
1	The menu display and instructions for use on the e-wallchart are easy for me to understand.	20	20	100 %	99.1%	Very interesting, can be used without revision.
2	Pictures, videos, and audio help me understand the learning material.	20	20	100 %		
3	I am enthusiastic about self-study.	20	19	95%		
4	I am interested in learning with this e-wallchart.	20	20	100 %		
5	I love this e-wallchart.	20	20	100 %		
6	I like the pictures and the color of the text in the e-wallchart.	20	20	100 %		

IV. DISCUSSION

In this research and development, the model used is ADDIE which consists of 5 research steps including analysis, design, development, implementation, and evaluation. This development model is structured programmatically with stages of systematic activities in an effort to solve problems related to learning resources according to the needs and characteristics of students (Tegeh et al., 2015). The material in the e-wallchart includes social studies content. Learners tend to learn by memorizing techniques rather than understanding learning materials because social studies learning resources are in the form of text (Kristin & Rahayu, 2016).

Material validation was carried out on June 15, 2021, by containing aspects of the suitability of the material including the suitability of basic competency (KD) with core competency (KI), conformity of indicators with KD, learning objectives according to indicators, learning materials in accordance with learning objectives. Aspects of the scope of the material include material containing the diversity of ethnic groups, regional languages, regional songs, and religions in Indonesia. Aspects of the suitability of the content include the suitability of the image with the learning material, the audio according to the learning material, the suitability of the video with the learning material, practice questions in accordance with the learning material.

The e-wallchart product assessed by the teaching materials expert contains aspects of the e-wallchart form which includes an electronic form, the completeness of the e-wallchart section, can be accessed via a browser on a smartphone or laptop, produces an html file type. Completeness of the product consists of cover, instructions for use, learning materials, pictures, audio, video, and practice questions. In the aspect of content composition, it includes the suitability of the composition of writing and background colors, clear images, audio and video, the accuracy of the layout of the writing in the learning material, the accuracy of the size and type of font used. Paying attention to consistency in the use of fonts and layout is a rule in the preparation of companion books in order to produce effective products (Magdalena et al., 2020).

The assessment of e-wallcharts by users contains efficient aspects which include easy access by students, learning materials that are easy to understand by students, products that are easy to use in distance learning, accessible at school and home. In the effective aspect consisting of pictures, audio, and video to help students understand, learning materials are conceptualized appropriately and in detail, the concept of brief learning materials, practice questions in accordance with the learning materials. The ease of students in understanding learning materials, concise and uncomplicated material is a criterion in the development of Sadiman's e-wallchart (Firaina et al., 2019).

Fourth grade elementary school students have the potential to be able to operate electronic devices independently so that they can maximize learning using e-wallcharts. According to students who are in high grade have high self-study motivation (Ekawati, 2012). In small group trials conducted with 7 students and large group trials by 20 students, the results showed that the e-wallchart product was very interesting to use in learning activities. This is because interactive multimedia-based learning media attracts students to learn (Putra, 2017; Putra, 2019). The product attractiveness assessment aspect contains 7 questions. Furthermore, the results of the distribution of the questionnaire were analyzed using the formula of (Arikunto, 2010). The percentage obtained by the small group trial is 90.4% while the large group trial is 99.1%. Based on this, e-wallcharts are very interesting for students.

V. CONCLUSION

In research on the development of e-wallcharts for social studies content, the sub-theme of ethnic diversity in my country, grade IV SD at KD 3.2 and KD 4.2, the

validity according to material experts got a percentage of 86.6%. Based on the acquisition of these numbers, it can be stated that the e-wallchart is valid so that it can be used as a companion book. According to teaching materials experts, e-wallchart validation obtained a percentage of 100%. From the validation results, it can be stated that the product is valid and can be used. Users validate with 90% percentage results so that the product can be declared valid and can be used. The product attractiveness of the small group trial results obtained a percentage of 90.4% while the large group trial obtained a percentage of 99.1%. The results of these calculations can be stated that the product is interesting and can be used for learning. From the explanation above, it can be concluded that the e-wallchart product with the content of social studies sub-theme of ethnic diversity in my country is valid, practical, and interesting so that it is suitable to be used as a companion book to carry out teaching and learning activities.

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