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Interactive multimedia based on Indonesian cultural diversity in Civics learning in elementary schools

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Abstract

This study aims to develop interactive multimedia based on Indonesian cultural diversity as a learning media for Civics in grade IV elementary schools and to determine the feasibility of the product from the material and display aspects. Product development uses the Borg & Gall. Data collection instruments in the form of interviews and questionnaires. The results of the validation by media experts indicate that the feasibility of interactive multimedia is in the "very feasible" category and the validation of the material experts shows that the feasibility of multimedia is in the "very feasible" category. Meanwhile, the results of the teacher and student responses in the field trial showed the "very feasible" category. These results indicate that the interactive multimedia developed is suitable for use in learning activities and as an alternative learning media for Civics, especially for class IV on the material of Indonesian cultural diversity.

Keywords: Elementary school, Indonesian culture, diversity, interactive multimedia, civic.

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1. Introduction

Technological developments have also brought changes in various fields, including education (Abduvakhidov et al., 2021; Martinez, 2018). The development of information and communication technology directly or indirectly has a positive influence on our lives (Raja & Nagasubramani, 2018). Technology is expected to help improve the quality of education, especially as a method and media in the learning process. The application of technology in the educational process has the potential to overcome various problems that are the challenges of education (Ain et al., 2016; Hutchison, 2019; Saptono et al., 2021; Wiradimadja et al., 2021). Technological developments can help teachers make learning more effective and increase interaction between teachers and students (Senen et al., 2021).

The use of communication and information technology cannot be separated from our lives today such as in the aspect of education and especially in the learning process (Chun et al., 2016; Herwin et al., 2021, 2022; Nguyen, 2021). The spread of Covid-19 in Indonesia has made the learning process no longer fully carried out in schools. Technology is a must in the implementation of online learning. Therefore, online learning has become a growing trend in the use of educational technology (Cigdem & Yildirim, 2014; Herwin et al., 2020; Pujiastuti et al., 2021). One of the learning media that utilizes technology is interactive multimedia. Multimedia is a combination of two or more types of video media delivered via computer devices (Andresen & Brink, 2002; Jumasa & Surjono, 2016). Interactive multimedia is a combination of several other media elements, including text, images, graphics, animation, audio and video, which can be controlled and operated by the user, so that the user can choose what will be run first according to the selection and existing instructions (Bardi & Jailani, 2015).

Interactive multimedia has several advantages so that it can be used as one of the online learning media in schools. First, the use of interactive multimedia makes learning more innovative and interactive. Interactivity in multimedia supports learning to increase understanding of the material presented. Students are actively involved in the learning process (Evans & Gibbons, 2007; Vrtacnik et al., 2000). Second, being able to combine text, images, audio, music, animated images or videos in a mutually supportive unit in order to achieve learning objectives (Leow & Neo, 2014). So that it can change students' perceptions of learning materials that are considered difficult, making students happy and motivated to learn (Ampa, 2015). The use of interactive multimedia can meet the needs of students with diverse learning styles, create a more real learning atmosphere, be able to create animations or other interesting displays to foster student interest and motivation. The use of learning methods equipped with interactive multimedia makes learning more effective (Rachmadtullah et al., 2018).

Third, learning using interactive multimedia can help students understand the concept of Civics (Dian Andarini et al., 2016). The ability of interactive multimedia to improve understanding of this concept is related to displays and animations that help students visualize abstract concepts and improve learning to be more effective (Nusir et al., 2013). In addition, the presence of pictures, animations, pictures, videos in interactive multimedia can facilitate cognitive processes to improve student learning abilities (Made Rajendra & Made Sudana, 2018).

Based on a preliminary study that learning motivation and understanding of Civics concepts on the material of Indonesian cultural diversity is low. Civics learning is considered difficult so that students are less enthusiastic in learning (Wuryandani & Herwin, 2021). Empirical conditions in the field show that most students still have difficulty understanding the concept of Civics in learning. The material is abstract and difficult to understand for fourth grade elementary school students who are still in the concrete operational stage (Schunk, 2012). Abstract learning materials require learning media to bridge students' understanding.

The results of observations showed that the level of students' understanding of Civics material was low. Civics material is taught in a textbook by the teacher. Teaching Civics in a textbook makes it difficult for students to understand the concepts of the material presented. Civics learning only uses textbooks provided by the school, so students' knowledge is only limited to textbooks. If the teacher continues to use the available textbooks, the students' knowledge will be incomplete. Civics learning contains many texts, especially on the material of Indonesian cultural diversity. Students are required to understand the material on the cultural diversity of 34 provinces in Indonesia by reading texts resulting in students becoming bored and less enthusiastic in online learning.

Based on the previous description, the purpose of this research is to develop interactive multimedia based on Indonesian cultural diversity which is suitable for use for fourth grade elementary school students. The development of interactive multimedia is deemed necessary because in its development it includes elements of animation and games in it so that it is in accordance with the characteristics of fourth grade elementary school students who like animation and games. Interactive multimedia that incorporates elements of animation and games in the presentation of the material creates interest for students so that it increases learning motivation and, in the end, can improve understanding of Civics concepts in the material of Indonesian cultural diversity.

2. Method

2.1. Types of research

This type of research is research and development or Research and development (R&D). This development research uses steps adapted from Borg & Gall with product development stages including preliminary stages in the form of field studies and literature studies, development includes planning and development, product feasibility assessment by media experts and material experts, field trials to obtain response assessments. teacher and student. This research is focused on product development in the form of interactive multimedia that can be used by students in online Civics learning.

2.2. Setting and research subject

The trial was conducted to obtain data as a basis for revising the product. Before the trial is carried out, the product is validated by several experts. The trial was carried out, after the product was revised based on suggestions and input from media experts and material experts. The purpose of the trial is to determine the response of users (teachers and students) to the product being developed. The stages are validation of media experts and material experts, the first revision, initial field trials, second revisions, main field trials, and third revisions. Respondents involved in this study were teachers and fourth grade students with random sampling.

2.3. Data collection technique

The data collection instruments in this study were a questionnaire for media experts, a questionnaire for material experts, and a response questionnaire for teachers and students. The types of data obtained in this study are quantitative and qualitative data. Quantitative data was obtained from the results of media expert assessment questionnaires, material experts, the results of teacher responses and student responses. Meanwhile, qualitative data was obtained from the results of suggestions and inputs given by media experts, material experts, and classroom teachers.

2.4. Data analysis technique

The data analysis technique used was descriptive analysis. Descriptive analysis is done by estimating the mean of all measured indicators. Quantitative data obtained from the results of the assessment of media experts, material experts, teachers, and students were calculated scores and the total scores of all aspects were then converted into qualitative data. Each analysis result is grouped into four categories, namely very feasible, feasible, less feasible and not feasible.

3. Results and discussion

This study succeeded in developing interactive multimedia assisted by Adobe Flash CS6 based on Indonesian cultural diversity for fourth grade elementary school students about Indonesian cultural diversity. The material on Indonesian cultural diversity consists of regional dances, folk songs, traditional musical instruments, traditional houses, traditional clothes, and caring for diversity. While the content in interactive multimedia consists of basic competencies and indicators, materials, games, evaluations, report cards, reflections, profiles, and references. This development uses the Borg & Gall development model. The stages of procedural development include the planning, implementation, and product assessment stages. Interactive multimedia is assessed by media experts and materials experts to get suggestions and input, then multimedia can be tested in the initial field test and main field test. Interactive multimedia underwent three revisions after being validated by media experts, material experts, and field trials. There were several reviews and inputs given by media experts, material experts, students and teachers.

3.1. Needs analysis

Analysis of the need for interactive multimedia development is carried out through field studies and literature studies. The results of field studies conducted indicate that the diversity of Indonesian culture is a material that is difficult for students to understand. Furthermore, it was found that the learning media had not been used in Civics learning and the material on Indonesian cultural diversity, both in face-to-face learning and online learning. The latest finding is that the use of information and communication technology has not been maximally utilized in online learning activities. Theoretical studies are carried out by examining theories related to interactive multimedia and previous research on the use of interactive multimedia in learning. The results of the theoretical study show that the proper use of interactive multimedia in learning can improve the quality and results of online learning.

3.2. Planning and development

The planning stage begins with formulating the goal, namely, to produce learning media in the form of interactive multimedia that is suitable for use in online learning in Civics learning, especially material on Indonesian cultural diversity. Furthermore, the planning to development stages include: first, analysing Core Competencies (KI), Basic Competencies (KD), and formulating indicators and learning objectives. Second, collecting materials, pictures and videos related to material on Indonesian cultural diversity in grade IV curriculum 2013. The material on Indonesian cultural diversity includes the diversity of Indonesian traditional dances, the diversity of Indonesian folk songs, the diversity of musical instruments in Indonesia, the diversity of traditional houses in Indonesia, the diversity of traditional clothes. in Indonesia, and how to care for diversity. Third, create a plot and design in the form of interactive multimedia storyboards and flowcharts.

Fourth, broadly speaking, interactive multimedia is developed with several parts in it in the form of materials, games, evaluations, reflections, report cards. The language used is Indonesian. The font used

is Comic Sans MS. The colours used are bright and sharp colours and do not interfere with the legibility of the writing. The images used in interactive multimedia serve to interpret the forms of various cultural diversity in Indonesia. The video used in interactive multimedia serves to provide a clearer picture of cultural diversity and the conflicts that arise because of not maintaining diversity. Animation on interactive multimedia to show the diversity of Indonesian culture. The sounds used in this interactive multimedia are in the form of narrative voices to introduce learning, animated sounds to invite and explain material, folk songs, background music, and in-game sound effects. The following is a preview of the interactive multimedia display on Civics learning material on Indonesian cultural diversity.

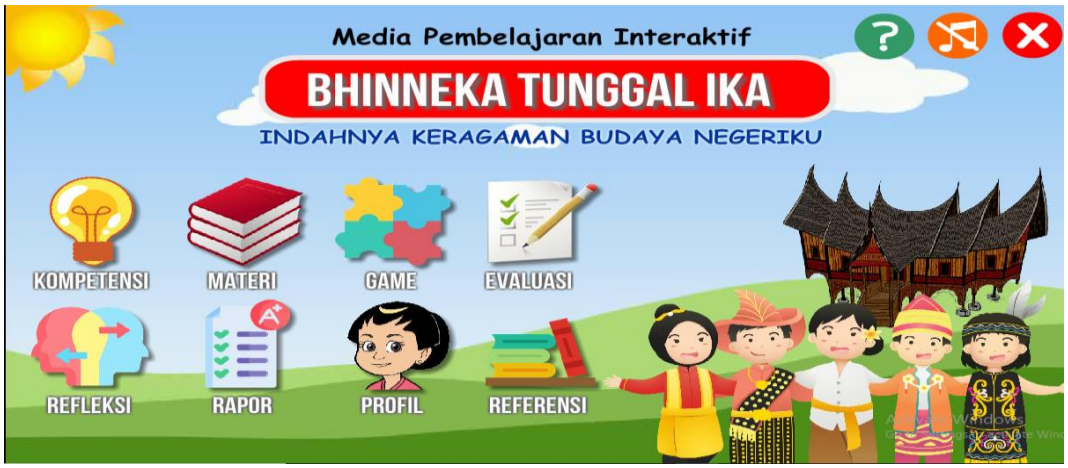

Figure 1. Interactive multimedia main page

Figure 1 is an interactive multimedia display on the main page. This situation is the beginning that will be found after opening this interactive multimedia. The page display on the interactive multimedia main menu includes competencies, materials, games, evaluations, reflections, report cards, profiles, and references. Some of these options can be selected to enter view each media content. In Figure 2, an example of a material page in interactive multimedia content is presented.

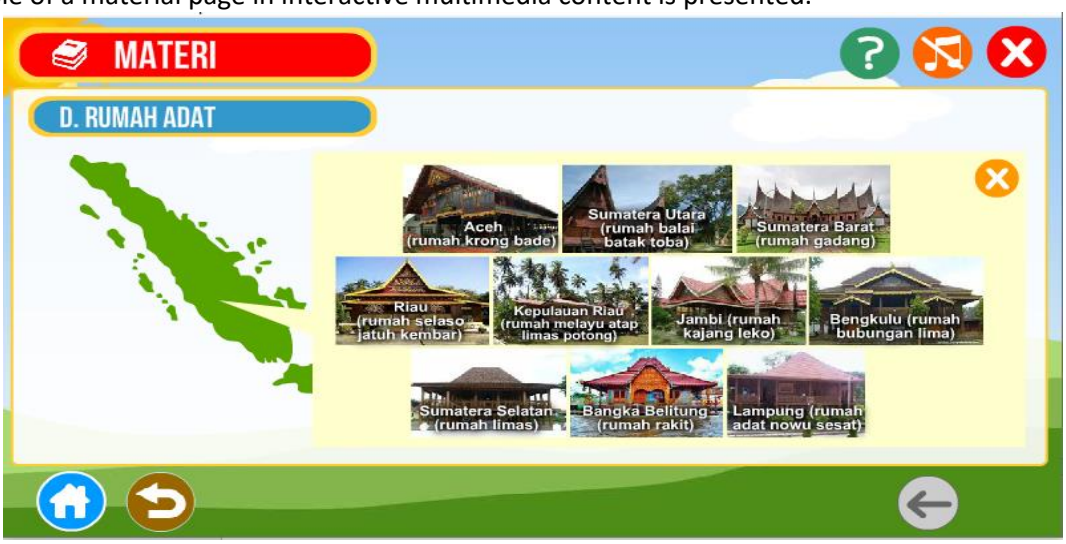

Figure 2. Interactive multimedia material page

Figure 2 is a page display of Indonesian cultural diversity materials containing regional dances, folk songs, traditional musical instruments, traditional houses, traditional clothes, and caring for diversity. Students can observe pictures, watch videos, listen to folk songs, listen to explanations, and read texts. In addition to material pages, this interactive multimedia product also provides games pages. This feature is provided to provide variety of learning for students. One of the goals is to raise students' motivation in following the subject matter. The following in Figure 3 presents the games page on interactive multimedia.

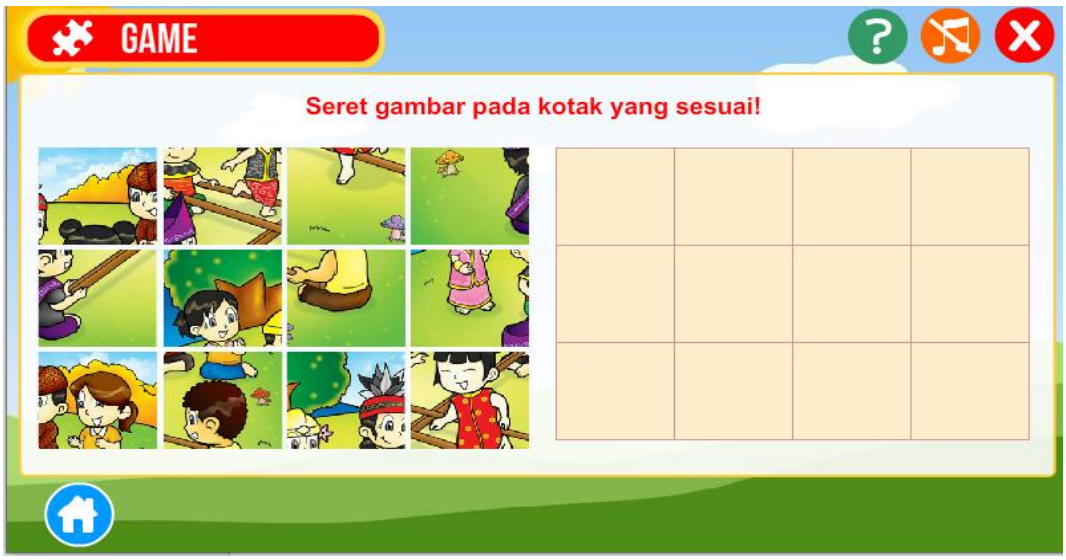

Figure 3. Games page

Figure 3 is a game page display. Games include three puzzle games that must be compiled by students. After the puzzle is arranged, a question related to the image will appear. Images include cultural diversity, riots, and an attitude of maintaining unity. The next content in interactive multimedia is the evaluation and reflection page. This content aims to provide facilities for teachers and students to evaluate their performance in learning activities. In detail this content is presented as follows.

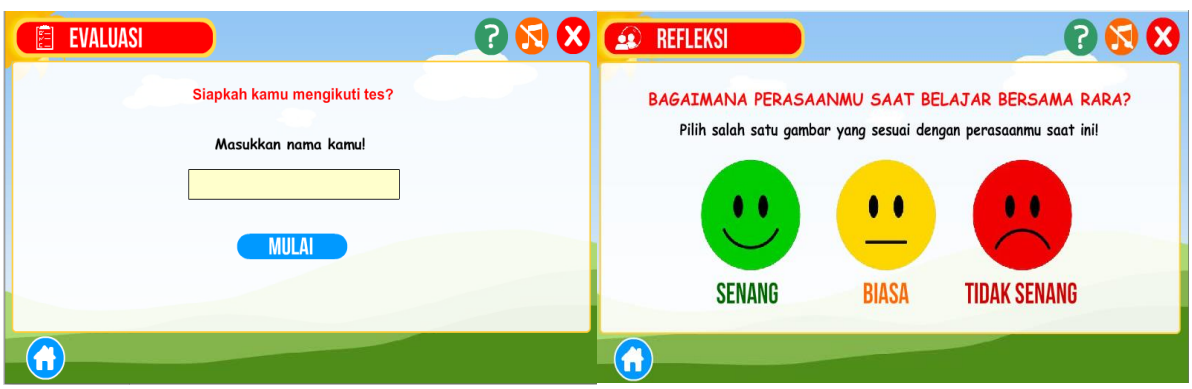

Figure 4. Evaluation and reflection page

Figure 4 is an evaluation and reflection page display. The evaluation page includes questions related to the existing material. At the end, students can check the scores obtained by students after working

on the available questions. The reflection page is used to check students' understanding and impressions during learning using interactive multimedia. In addition to the reflection page, this learning media also provides a report page as feedback on learning outcomes that can be utilized by both teachers, students and even parents of students as information about their child's learning development. Interactive multimedia has been designed and developed using Adobe Flash Professional CS6 with storage of the results in the form of an .exe file to be run using a laptop or computer and applications to be run using an android smartphone.

3.3. Product assessment

Product assessment is the final stage of this research. Product assessment is carried out by media experts and material experts. This product assessment was conducted to determine the feasibility of interactive multimedia in Civics learning, especially on the material of Indonesian cultural diversity to increase students' learning motivation and understanding of Civics concepts. The assessment by media experts on interactive multimedia was carried out twice. Product assessment by material experts on interactive multimedia is carried out once. Media experts provide assessments and suggestions for improvement of the developed interactive multimedia. Based on the results of the assessment, it can be concluded that the results of the assessment by media experts are included in the very feasible category. The assessment was carried out by a Civics learning material expert. Material experts provide assessments and suggestions for improvement of the developed interactive multimedia. The results of the assessment by material experts are included in the very feasible category. Therefore, the media was declared feasible to be tested in field trials to teachers and students.

3.4. Product test results

The main field trial involved one teacher and fourth grade students who were randomly selected and had low, medium, high academic abilities. Teachers and students use interactive multimedia with android independently and then fill out the teacher and student response questionnaires at the end of the activity to find out the teacher and student assessments of the interactive multimedia that has been used. The teacher's assessment of interactive multimedia is used as a consideration for revising the product. The following are the results of the teacher's response assessment in the main field trial presented in Table 1 below.

Table 1. The results of the teacher's assessment response to interactive multimedia

No	Assessment Component	Score	Rating result
1	The suitability of the material with competence	3	Feasible
2	The suitability of the material with the learning objectives	4	Feasible
3	The suitability of the material with students	4	Feasible
4	The material displayed is in accordance with competence	4	Very feasible
5	Compatibility of images and animations with the material	4	Very feasible
6	Clarity of material description	3	Feasible
7	Material collapse	4	Very feasible
8	The attractiveness of interactive multimedia displays	4	Very feasible
9	Giving motivation	3	Feasible
10	Interactivity of media with students	4	Very feasible

11	Effective presentation of material	3	Feasible
12	Giving quiz/question	4	Very feasible
13	Game content	4	Very feasible
14	Improving the quality of learning	4	Very feasible
15	Good use of language	3	Feasible
16	Ease of understanding the meaning of the term	3	Feasible
17	Ease of writing to read	4	Very feasible
18	Serving animation	4	Very feasible
19	The font used	4	Very feasible
20	Font size used	4	Very feasible
21	Composition of colors used	4	Very feasible
22	Figure clarity and animation	4	Very feasible
23	Voice clarity	4	Very feasible
24	Instructions clarity	4	Very feasible
25	Ease of use of interactive multimedia	4	Very feasible

Based on Table 1, it can be concluded that the results of the teacher's response assessment in the initial field trial are generally included in the very feasible category. Therefore, interactive multimedia is declared feasible to be tested in the next trial. Apart from being assessed by the teacher, this interactive multimedia product was also assessed by students as the main target of the product. Student assessment of interactive multimedia is used as a consideration for product revision. The following in Table 2 are the results of the assessment of student responses in the initial field trial.

Table 2. Student assessment results on interactive multimedia products

No	Assessment Component	Score	Rating result
1	Interesting interactive multimedia used for learning	258	Very feasible
2	Easy-to-use interactive multimedia		
3	Attractive interactive multimedia display		
4	The image on the material has the right placement with the sound		
5	Easy to understand instructions		
6	Interactive multimedia has clear sound		
7	The material in interactive multimedia is easy to understand	129	Very feasible
8	Easy game to play		
9	Questions / quizzes on interactive multimedia are clear		
10	Understand the learning outcomes obtained after taking the quiz	205	Very feasible
11	Understand the terms contained in interactive multimedia		
12	Understanding the material delivered with interactive multimedia		
13	Understanding the feedback given through interactive multimedia		
14	Love learning with interactive multimedia		
15	The language used in conveying the material is easy to understand	41	Very feasible

Table 2 is the result of the assessment by students as interactive multimedia users. This assessment is based on students' opinions after using interactive multimedia that has been developed. Based on the results of student assessments, it can be concluded that the results of the assessment of student responses in the initial field trial are included in the very feasible category. Interactive multimedia on the material of Indonesian cultural diversity has been developed according to the Borg & Gall development model. The development procedures carried out are needs analysis, development, and testing. The analysis stage produces information about the needs and product information to be developed. The development stage produces a design and a final product in the form of interactive multimedia on the material of Indonesian cultural diversity. The trial stage produces products that are suitable for use as Civics learning media. Interactive multimedia has gone through a score conversion analysis so that it is declared feasible to be used in Civics learning.

Findings based on the results of assessments by media experts and material experts are both in the very appropriate category so that interactive multimedia is suitable for use as Civics learning media. After interactive multimedia was declared feasible by media experts and material experts, interactive multimedia was tested on teachers and students so that it was concluded that the results of the recapitulation of teacher and student responses showed a very feasible category and could be used in Civics learning.

The findings obtained based on the assessment of media experts, material experts, teachers, and students, it is known that students feel more interested and enthusiastic in learning Civics using interactive multimedia. Learning also takes place more fun and easier to understand. As revealed by Karime et al (2012) that linking education with multimedia will make learning activities more fun, comfortable and obtain more effective results. This is reinforced by Cairncross & Mannion (2001) that multimedia has the potential to create a higher quality learning environment.

The implementation of fun learning activities will generate student learning motivation so that students more easily understand the material presented by the teacher. The application of multimedia in learning activities has the potential to increase learning motivation and help students understand the material being taught (Patel, 2013; Ramadhani & Muhtadi, 2018). In addition, multimedia can make students more active in learning in learning (Gilakjani, 2012). The combination of text, images, videos, sounds, games that can be operated by students makes learning more meaningful. Through the incorporation of media, learning is more interactive and reflects everyday life experiences (Komalasari & Rahmat, 2019). In addition, multimedia technology is very useful for integrating various types of learning strategies (Pun, 2014) so that it has a positive impact for both teachers and students.

The information obtained by the teacher on the use of interactive multimedia shows that the use of the product has been appropriately used to increase motivation and understanding of Civics concepts in online learning. Students seem enthusiastic and eager to learn to use interactive multimedia because there are educational games in it. Educational games can increase students' learning motivation (Nasrudin et al., 2018). In addition, the use of interactive multimedia can also improve students' conceptual understanding of Civics material (Sartono et al., 2022), especially the diversity of Indonesian culture in the fourth grade of elementary school. Through interactive multimedia, students can recognize and understand the diversity of Indonesian culture that students may have never seen before. Students can also learn independently to repeat and re-study it at home.

4. Conclusion

The development of interactive multimedia in Civics learning, especially the material on Indonesian cultural diversity, shows the findings that interactive multimedia was declared feasible by media experts and material experts, teacher responses and student responses, both initial field tests, and main field tests. This interactive multimedia product consists of several components such as competencies, materials, games, evaluations, reflections, report, profiles and references.

The results of the media expert's assessment got a very decent category, the material expert's assessment got a very decent category. The results of the assessment and responses given by teachers and students in field trials have also given very decent results. Therefore, interactive multimedia is declared feasible and can be used to increase learning motivation and understanding of Civics concepts for fourth grade elementary school students.

The findings of this study recommend an interactive multimedia that contains the diversity of Indonesian culture. This product is designed based on the integration of information technology so that it is very suitable for distance learning classroom settings. In addition, this product can also be applied to conventional face-to-face classroom settings. This product is very useful both for teachers and for students, so it is recommended to be applied continuously in learning activities, especially in Civics material.

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