

**Development of Educandy-Based Interactive Poster Learning Media
in Elementary School for Natural and Social Sciences Lessons**

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Abstract

Along with the development of the times, changes always occur, including in the world of education. One of them is the education system in Indonesia, namely, the curriculum, the curriculum in Indonesia always changes with the times. Just as the Minister of Education and Culture issued a new curriculum, namely the independent curriculum, in this independent curriculum there were two important tools that were formulated, namely the independent curriculum and the independent platform. The Merdeka curriculum is designed in a simple and in-depth manner, while the Merdeka platform utilizes existing technology. as was the case during an interview at one of the public schools, media facilities and feelings were already available but had not been utilized optimally, therefore the researchers worked together to make educational media interactive posters based on educandy to facilitate students in the learning process. This study aims to produce and describe the feasibility of educandy-based interactive posters in science learning based on material, media and practitioner validation and to find out how students respond to educandy-based interactive posters when used in research. This research method uses the ADDIE development model. This study produced educandy-based interactive digital posters and obtained 97% results from material experts, media experts and practitioner experts while student responses obtained very good responses as evidenced by obtaining 93% results in the very good category. Data collection techniques and data analysis, namely, interviews, questionnaires and expert validation while qualitative and quantitative data analysis.

Keywords: instructional media, interactive posters, educandy

INTRODUCTION

Along with the times, changes always occur including in the world of education, one of which is the Indonesian education system, namely the curriculum which changes from time to time since the era of independence there has been a curriculum, from time to time the curriculum always changes following the times, most recently the minister of education, culture, research and technology (Mendikbudristek) launched or issued an independent curriculum. This independent curriculum is present because of the problem of the learning crisis exacerbated by the covid-19 pandemic which significantly changed the teaching and learning process. To overcome or reduce existing problems, systemic or structured changes are needed in improving the quality of both teachers and principals. Through this independent learning, there are two important tools formulated to restore or improve and support the learning process by the minister of education, namely the independent curriculum and the independent platform. The independent curriculum also has several advantages or advantages, namely a more in-depth and simple curriculum and according to Puspita et al., (2023) this independent curriculum changes the education system into a better perspective.

The independent curriculum is also prepared by the government for the advancement of the quality of education in Indonesia to produce superior students in facing or experiencing every challenge in the future. The implementation of policies in independent learning encourages the role of a teacher both in developing the curriculum and in implementing the learning process. In the independent learning curriculum, teachers have a role as learning facilitators supported by several competencies, including professional, pedagogical, personality and social competencies. One of the important roles of teachers in curriculum development is that teachers can participate and effectively work with developing the school curriculum to organize and design materials, textbooks and learning content as well as according to Daga (2021) stated that teacher participation in the process of developing the curriculum is important to adapt the content of the curriculum to the needs of students, because a teacher or teacher can understand or know about the psychological conditions of students and know how good learning methods and strategies are (Daga 2021:1077). as stated by Pakpahan et al. (2020), a teacher must be able to choose and select media with consideration of the learners' qualifications: (1) the ability of learners (2) the purpose of learning (3) the strategy of learning (4) the ability of learners to use the medial (5) the cost of using the medial (6) the salralnal and supporting pralsalralnal (7) the effectiveness and efficiency.

One of the changes in the independent curriculum with the previous curriculum is the existence of subjects that are combined, between science and social studies into one, namely into Natural and Social Sciences and more utilizing digital technology. Natural and Social Sciences itself is a science that studies the creatures that exist on earth, both living and non-living things in the universe or the natural world and their interactions, and examines human life as an individual as well as a social being who interacts with his environment. In general, science is defined as a combination of various knowledge that is arranged logically and systematically by taking into account or looking at cause and effect. This knowledge covers or includes natural knowledge and social knowledge. (Aditomo 2022).

Natural and Social Sciences lessons help learners grow or increase their curiosity about phenomena or events that occur in the surrounding environment. This curiosity can trigger or grow learners to understand how nature works and interacts with human life on earth. This understanding can be used to identify or recognize various problems faced and

find solutions or it can be said that the way out to achieve sustainable development goals. (Aditomo 2022:172).

The challenges and obstacles that humans face from time to time are increasing. The problems faced today are no longer the same as those faced ten years or even a century ago. Science and technology continue to be developed to solve and adjust every challenge faced. Therefore, the pattern or model of education in Natural and Social Sciences needs to be adjusted so that the younger generation can answer and solve the challenges faced in the future or the future.

Science and technology are also always developing to solve any existing challenges, therefore natural and social science education or Natural and Social Sciences needs to be adjusted so that the younger generation can answer and solve the challenges faced in the future. Currently, the development of technology is developing very well or very quickly, meaning that in the learning process between educators a teacher and students have begun to utilize information technology that is increasingly developing. One form of information technology that is widely used by almost everyone is the internet, with the internet we can all access or open all applications easily, quickly and anywhere. The internet can also be utilized in all areas of life, one of which is in the field of education.

This internet is used to support or assist the learning process. With this internet, students can learn independently and access various information they need and want. Therefore, the use of information technology in the field of education must be maximized or optimized again, namely by developing it into a learning resource for students that can be used anytime and anywhere when needed, for example making learning media, learning media itself can improve or foster the communication relationship between students and teachers so that it can run smoothly and get maximum results Taufiq, Dewi, & Widiyanto (2013), and the media is also not only an introduction to material but fosters imagination for students (Khoirurrohman, & Irma 2021:12).

According to Pakpahan et al. (2020), learning media can grow or increase the enthusiasm and motivation of students because the material delivered by the teacher or instructor can attract the attention of students and mastery or ability of the material becomes better or increases because it allows material or teaching materials delivered with various kinds of media that can be used or accessed repeatedly and according to Ekayani (2017) it enables students to learn independently according to their needs, audio or visual and provide responses or stimuli and equate the same view in the learning process.

Learning media itself is one of the important facilities in a learning. Learning media must be interesting, and can make students interactive so that they can learn in a fun way so as to form a comfortable and conducive learning atmosphere or condition. Interactive media itself according to Pratiwi et al. (2020) something that uses hardware with software used as an intermediary between learning and learning resources is called interactive learning media. Computer-based facilities that contain images, animations, audio or sound and video to support the learning process are called interactive learning media.

One of the learning media that utilizes technology, namely, Information technology-based learning media requires a tool that functions to change the form of media or rigid material to be more flexible and easily understood by students. (Sutisnawati et al., 2022). As stated by Surjono (2014) digital learning resources can also be defined or explained as any object or other thing in a digital form or format that is

utilized by teachers or students to achieve learning objectives. It can be stated that learning media can serve as a link between the advancement of learning technology and quality of teaching.

As for the use of technology in the world of education or the learning process according to Hasrah (2019), (1) increases access to the learning and education process (2) develops abstract depiction to make it clear (3) facilitates the material being studied and (4) makes the appearance more attractive.

When conducting an interview at an elementary school to be precise in fourth grade on the fourth of November, the teacher has used existing learning media, especially in digital form or made use of existing technology, such as chromebooks or LCD projectors but has not been used optimally, therefore, researchers work together to develop or create a learning media that is in the form of interactive posters for students. The main goal is to facilitate or receive information or knowledge for students and learning media that attract students to be more enthusiastic in the learning process. Izatt & Dadiz (2015) posters can facilitate the delivery of ideas or thoughts more quickly and efficiently. Posters are also a learning tools that can be fun and innovative for students then realized in concrete form (Djonjalidi et al., 2021). are As stated by Pakpahan et al., (2020), that the medial has the following characteristics: The characteristics include: (1) Medial learning is identical or the same as demonstration, demonstration itself comes from the word “raga”, which means objects that can be touched or held, seen and heard and can be observed or can be learned by the five senses or eyes (2) The main emphasis lies on objects or things that can be seen and heard (3) Learning media is used in communication relationships in the learning process between teachers and students. One of the learning media is like video animation.

Some experts said about the definition of video animation. Pradana et al. (2020), said that video animation is a form of video animation media technology that can support the learning process. According to Letrowein et al. (2023), video animation is a combination of audio or sound media and visual media in the form of moving images so that students can easily understand or understand them. According to Letrowein et al. (2023), the advantages of video analysis itself in the teaching and learning process that is to save the energy of a teacher (teacher) in explaining a material because this animated video can be played repeatedly by students to understand a material. Research conducted by Nurfadhillah et al. (2021), the purpose of this study was to develop or describe appropriate and attractive poster learning media for students. This research method uses Research & Development (R&D) method. The results of this study are able or able to attract the attention of students because the posters used contain elements of images and explanations of material that are easy to understand and understand. The development of learning media is the same as that developed by researchers, namely they are developing a poster learning media.

METHOD

This research uses or refers to the type of Research and Development (R&D) development research with the ADDIE research design (Analysis, Design, Develop, Implementation, and Evaluation). To produce a product and see the response of students. This research was carried out or carried out at one of the public elementary schools, namely SDN Benteng I, Sukabumi. The time for conducting this research is in the even semester of the 2022/2023 academic year. The subjects of this study were the fourth grade students at SDN Benteng Satu Kota Sukabumi, totaling 19 students to do trials and obtain

assessments related to students' responses to educandy-based interactive poster learning media.

The technique used for data collection carried out in this study was, unstructured interviews according to Hartono (2018) unstructured interviews refer to one type of interview where the researcher asks or gives general questions with a minimal number, the results of this interview get the results that teachers do not take advantage of existing technology because of the limited time that is owned by the teacher himself. Closed questionnaire, closed questionnaire. It is an instrument whose answers are already available, respondents just have to choose the answers that already exist (Sukendra & Atmaja 2020). This questionnaire is used to see the responses of students and find out the interest of students in the learning process using media in the view of the teacher and obtain the result that students are more interested in learning when using media because it is easier to understand or understand. Expert validation, according to Triagarajan et al. (2020), is a test format in research and development. It aims to provide input or suggestions from the validator to researchers as feedback on the product being developed (Halleludin et al., 2020). the results of this validation get very good results in terms of media, materials and practitioners including the responses of students also get very good responses.

This interview technique is used to find out the problems that exist in schools, and what learning media are commonly used to support the learning process. This questionnaire is used to obtain information needed by researchers and validation experts to provide input, suggestions and ensure the correctness of the product to be developed.

Researchers processed the data using a Likert scale. After conducting research and obtaining research results or data, the data obtained is then processed using the Likert scale, the score range used on the Likert scale is 1-5 with the categories in tables 1 and 2 and use formulas

$$\text{percent value} = \frac{\text{raw score}}{\text{maximun score}} \times 100\%$$

One of the validation test formulas used is:

$$X = \frac{\sum X^1(\text{Total Validator satu}) + \sum X^2(\text{Validator 2}) + \sum X^3(\text{Validator 3})}{N \text{ (number of validators)}}$$

Table 1. Likert Scale Guidelines

No.	Information	score
1.	strongly agree	5
2.	Agree	4
3.	Doubtful	3
4.	don't agree	2
5.	totally disagree	1

Table 2. Crteria Category

No.	Criteria	percentage
1.	Verry good	86-100%
2.	Good	76-85 %
3.	enough	60-75%
4.	Not enough	55-59 %
5.	Not good	≤ 54 %

FINDINGS AND DISCUSSION

In research and development using the ADDIE development model. In the ADDIE process there are several stages that must be passed starting from Analysis, Design, Develop, Implementation, and finally Evaluation. The aim is to produce and describe the feasibility of educandy-based interactive posters in science learning based on material validation, media validation and practitioner validation and to find out how students respond to educandy-based interactive posters when used in research. In previous research, they had developed interactive posters based on Android which consisted of five pages and were declared valid. Therefore, in this study, researchers developed interactive posters based on educandy in science lessons for fourth grade, which consisted of one page containing instructions for use, objectives of learning material, learning materials and evaluation or questions. This one-page poster already contains instructions, objectives, materials, questions or evaluations and does not require a lot of storage capacity and is easily accessible by Stage One students, namely

Analysis

In this analysis activity collects the data needed in developing media based on problems that exist in the school environment. Collecting data in this study using interviews and questionnaires. This interview was conducted with a grade IV teacher at SDN Benteng I, Sukabumi. The topics discussed in the interviews were identifying problems in the school environment, such as the availability of existing media and what media are commonly used in the learning process. Then proceed with distributing or distributing closed questionnaires to several elementary school teachers to find out students' interests or responses to animated media during the learning process through glasses.

The results of interviews and questionnaires obtained results, namely the lack of teachers utilizing existing technology and limited time for teachers to make animated media for students while from the results of the questionnaire the students themselves were more interested in learning to use animated media aids because with the help of animated learning media students became easier to understand or digest the material during the learning process. The results of this interview and questionnaire will be used as a guideline for the development of educandy-based interactive poster learning media products. But in choosing the use of media, it must be adjusted to the abilities of students, as Pakpahan et al., (2020), a teacher must be able to choose media with consideration of the abilities of students, including (1) the ability of students (2) learning objectives (3) learning strategies (4) ability to design and use media (5) manufacturing costs (6) supporting facilities and infrastructure and (7) effectiveness and efficiency.

Design

At the design stage the researcher carried out several stages starting from designing or determining the material followed by the poster design stage. The material design stage starts from compiling the material, learning outcomes and learning objectives, after which it proceeds to the stage of making interactive posters based on educandy. Posters themselves are one of the learning media that can attract students' attention and interest in learning. In stage (1) make the first poster open the Canva web after that look for a blank poster then start designing according to the topic of discussion that will be made in this research, namely discussing the topic of magnets.

In stage (2) after that continue on the element section here we will look for related images with the topics to be discussed as in the picture you can see various kinds of

magnets, one of which is a picture of a horseshoe magnet and a bar magnet. Images can be seen in Figures 1 and 2.



Figure 1. Poster Blank

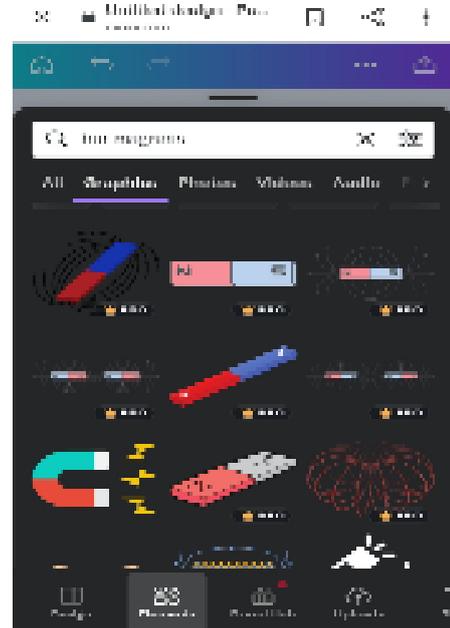


Figure 2. Magnetic Element

In stage (3) Then all the elements are entered after all the elements are entered and it is deemed sufficient the last step is to enter the barcode by copying the material link and evaluating the link that was made before then entering the application section. Followed by entering the link that has been made and later changing it to a barcode, the barcode can be used with the appropriate display size or needed, (4) after all the elements are complete and look good or attractive then the poster can be used or accessed by fourth grade students can be seen in Figures 3 and 4.

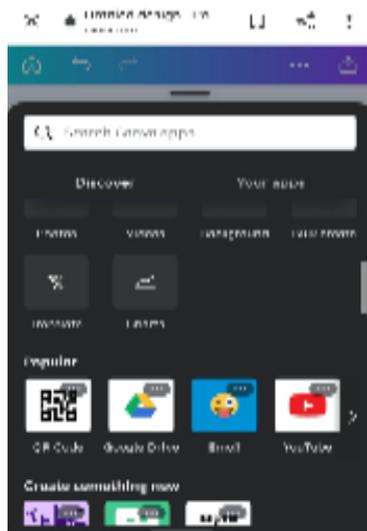


Figure 3. Barcode



Figure 4. Poster Results

Develop

At this development stage it starts with the material, the material presented in the development of this learning media, namely the science lessons about magnetic magical objects is continued at the validation stage by experts or validators from material experts, media and practitioners. At this validation stage get a different percentage of values. Material experts are carried out by experts who have competence or ability in the field of Natural Sciences by obtaining an hali score of 48 with a percentage of 96% and a very good category. So with this the material is feasible for use in making educandy-based interactive posters. Media experts are carried out by media lecturers who have competence in the field of media, the results obtained are getting a score of 43 with a percentage of 86% in the very good category, the media is stated to be very good or very suitable for use in learning after four elementary schools with Magnetic Maltery. After that, it was continued with practitioner validation, carried out by experts who had competence in their fields, namely grade 4 teachers, the results obtained by the practitioner validators were 50 total scores and 100% percentage. So with that the media and materials used are very good and very feasible for students to use.

After conducting validation by experts starting from material experts, media experts and practitioners who are said to be feasible and get different scores, then the accumulated scores obtain a score of 47 with a percentage of 97 categories very good or very feasible. The overall assessment summary can be seen in diagram 1.

Expert Validation Results

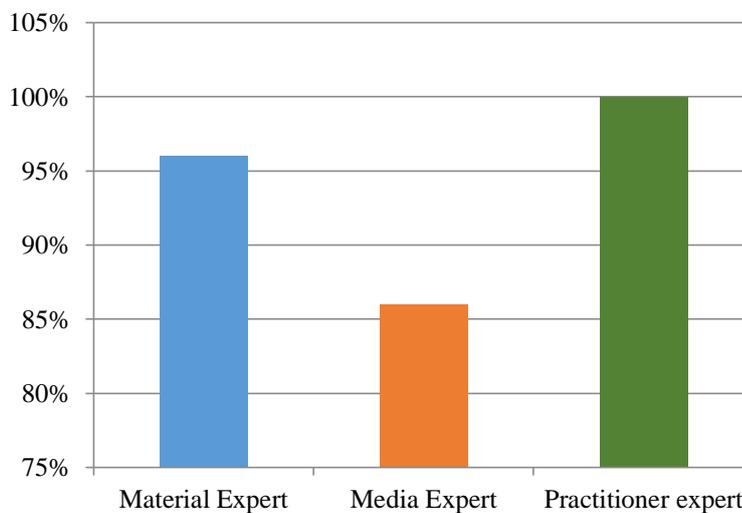


Diagram 1. Expert Validation Results

Implementation

The implementation stage, the implementation of the development of educandy-based interactive poster learning media, was carried out at SDN Benteng Stu, Sukabumi city, implemented in small groups. This small group activity consists of four students. This activity aims to test educandy-based interactive poster media. At the time of learning, students listen to the material first, then fill in the questions and finally fill out the student response questionnaire. It can be seen in Figure 5 and Figure 6.



Figure 5. Students watch videos



Figure 6. Students fill out a questionnaire

Students start learning by scanning the material barcode on the poster by opening a web scan on Google after that students begin to listen to the material in the form of an animated video. A learning process activity that utilizes learning media technology will make it easier for teachers to teach or convey material and students more easily understand or accept the material as expressed by Salsabillah et al., (2021:131), teachers can streamline time and present teaching materials or materials appropriately time and can be stored and can be opened whenever needed. After all students have watched the video and understood the student material, they are continued by accessing educandy-based evaluation questions in the same way, namely by scanning the barcode contained in the poster. Educandy itself is an application that has the slogan or motto “Making Learning Sweaterer” (*Membuat Belajar Lebih Manis*) Purwanti (2022:187).



Figure 7. Educandy Application

This learning game can create or make students not easily bored and can make interactive learning games in a few minutes and easily understood by everyone. It is in line with Nurhikmah et al., (2023), stated that educational games can encourage students to always think creatively and carry out activities with others or with students in playing games in learning activities. In addition to, educational games are to stimulate or arouse intellect and include one way to train to increase user concentration or focus (Rinaldi et al., (2023). Next, according to Djonnalidi et al., (2021) games can be used as one of the learning media that carry out the concept of playing while learning. Furthermore, the benefits in this educational game according to Pane et al., (2017) are the learning process becomes more interesting, more interactive, and increases interest in learning. Games are easier to attract long-term student attention and the learning process can be done anytime and anywhere.

This educational game is divided into three categories including word, matching pairs and quiz questions. In this category there are several choices of games that can be used. Researchers in this study used a matching pairs game with multiple choice and cross words. It can be seen in Figure 8 and Figure 9.



Figure 8. Educandy Game display

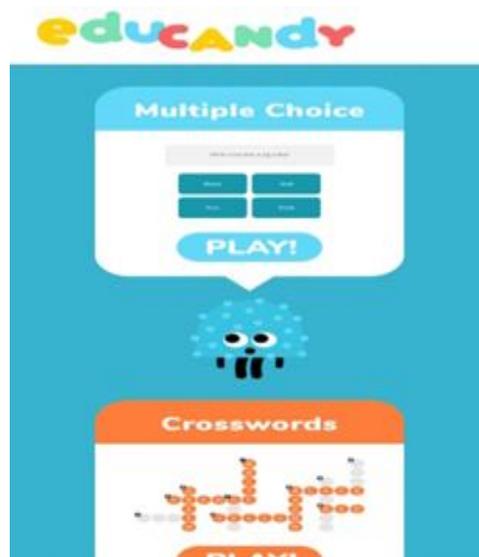


Figure 9. Selected Games

Evaluation

At this evaluation stage, namely seeing how the results of student responses regarding educandy-based Interactive Poster media. the results of the questionnaire show that these results obtain an average value of 92% media, 93% material and 95% language when accumulated get an average of 93% which states that this media is categorized as very good for the learning process of students, can be seen on Diagram 2.

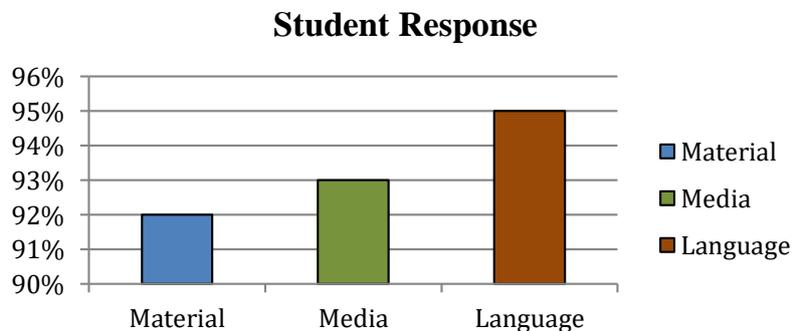


Diagram 2. Students' Response

Based on the research data, it was found that students were more interested, more enthusiastic in learning and easy to understand the material with this media as explained that learning media is a tool that can help the learning process so that the lessons conveyed become clearer with this learning media. The learning process becomes more interactive so that the learning atmosphere becomes more lively or enthusiastic, not monotonous and not boring for students.

After conducting this research, learning media plays an important role in the learning process at SDN Benteng I, Sukabumi. It is in line with the statement by Pakpahan et al., (2020) that the media has an important role, one of which is: (1) media as a tool learning aids (2) as a communication aid during the learning process (3) as a tool for growing new creations or findings in learning and according to Rusli, (2021:124) as a teaching aid tool that will participate in influencing a conducive learning atmosphere or

conditions . After carrying out the research, the researcher provides suggestions for further researchers first, before having to know the facilities and infrastructure that will be used and must have a good internet network connection so that the learning process runs well and smoothly. Second, during the learning process the teacher must really pay attention to students

CONCLUSION

Based on the results of the research and research analysis on the development of educandy-based interactive poster learning media in elementary school science lessons in fourth grade, it can be concluded that the development of educandy-based interactive poster learning media in elementary school science lessons when viewed from a material standpoint is in accordance with the learning objectives and it is in accordance with the subject matter of the fourth grade then when viewed from the point of view of educandy-based interactive poster media it can make it easier for students to understand the material and learning is more fun while in terms of expert practitioners that the media and material can already attract the attention of students and make it easier for participants educate in learning. The feasibility of the validation results of the educandy-based interactive poster media was declared valid by three validators or experts, these experts consisted of material experts, media experts and practitioner experts who got very good or very decent results. This means that interactive posters are feasible to be developed or used in the learning process. Responses from students regarding educandy-based interactive media posters received very good responses to be utilized or used in the learning process. Based on the research results, a suggestion can be made, that is, for the use of educandy-based interactive posters, it is better to have a good internet network because if the network is not good, it can hinder the learning process.

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