GRAVITY
Jurnal Ilmiah Penelitian dan Pembelajaran Fisika
Collaboration with PSI
e-ISSN : 2528-1976; p-ISSN : 2442-515X

Development of video learning media based on powtoon application on the concept of the properties of light for elementary school students

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Abstract

The purpose of this research is to know the process of development and feasibility of the learning media of Powtoon and analyze student's understanding after using media in the learning. This research is research and development, the models of construction adopted by Borg and Gall. The product is tested for eligibility through validation testing by the content and media experts. The subject of this study was a student of class IV SDN 3 Attack as much as 20 students. Based on the analysis of the data acquired that a learning-based media of Powtoon is declared feasible by the media experts with an average percentage score of 88% and content expert with a percentage of 80%. the response of students with a rate of 98% the which included "excellent," as well as test of student's understanding, gained an average of scores of 89.25, which belongs to the category of "excellent." From the study, it can to be concluded that learning deserves media of powtoon use in the learning process on the property of light topic.

Keywords

Learning media; powtoon; light properties

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Gravity: Jurnal Ilmiah Penelitian dan Pembelajaran Fisika

http://jurnal.untirta.ac.id/index.php/Gravity

ISSN: 244-515x; e-ISSN: 2528-1976

Vol. 6, No. 1, February 2020, Page 34-40

Development of video learning media based on powtoon application on the concept of the properties of light for elementary school students

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(Received: 10 December 2019 ; Revised: 20 February 2020 ; Accepted: 29 February 2020)

ABSTRACT

The purpose of this research is to know the process of development and feasibility of the learning media of Powtoon and analyze student's understanding after using media in the learning. This research is research and development, the models of construction adopted by Borg and Gall. The product is tested for eligibility through validation testing by the content and media experts. The subject of this study was a student of class IV SDN 3 Attack as much as 20 students. Based on the analysis of the data acquired that a learning-based media of Powtoon is declared feasible by the media experts with an average percentage score of 88% and content expert with a percentage of 80%. the response of students with a rate of 98% the which included "excellent," as well as test of student's understanding, gained an average of scores of 89.25, which belongs to the category of "excellent." From the study, it can to be concluded that learning deserves media of powtoon use in the learning process on the property of light topic.

Keywords: Learning media, powtoon, light properties

INTRODUCTION

Education is one of the essential things in living life because it can develop the potential within themselves. Education is needed and very valuable. Being smart, intelligent, and has a good value is the desire of most people because, in general, people will look at the extent to which a person's intelligence was of importance in school. When the higher a person's education, then they can become a better person. They are getting a decent job and a good life so that the education process expected to run correctly and optimally.

The quality of Human Resources (HR) can be a benchmark for country progress. The better the condition, it can compete in this era of increasingly advanced. Quality can be being seen from the learning process in elementary school because here was the learners would be established and fostered personality. Whereas, if viewed from the point of interest primary school, is intended as a process of building the

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capacity of the most fundamental individual learners, where each learner actively studied for their encouragement in yourself and the atmosphere that makes it easy (conducive) to the development of themselves optimally.

A school is a place that was instrumental in the formation of qualified resources. The first study found a man who was in the house. However, in childhood, primary school is the basis for a child to receive an education. Educational objectives contained in the curriculum. Curriculum that serve as guidelines in the implementation of learning to achieve a goal in Education. In 2019, there are two that are using in the school curriculum. Kurikulum Tingkat Satuan Pendidikan (KTSP), and some are already using the curriculum of 2013. As the name implies, Curriculum 2013 has been able to be used in schools that began in 2013.

The process of learning happens in the classroom is a vital role of teachers and learners. Teachers are required to have innovation in delivering education so that learners can receive science presented well. Teachers are also able to use and develop learning media following the basic teaching competence. Nowadays, technology has developed very well, so in the process of utilizing the excellent learning, too much technology already available, to assist teachers and learners in the learning process. From the preliminary study showed that the process of learning the concept of the properties of light, the teacher just relies on government handouts and guides books conventional supports. Process interactions that occur in learning between teachers and learners are less than the maximum. Though the school has adequate facilities such as projectors. Teachers claimed less than optimal in using the school facilities.

Learning about science concepts conveyed poorly by teachers will affect the students understanding the less well too. Such as the delivery of material properties of light, for example. The features of view are an essential material in our daily lives. Examples of what we can see is if we Americans are looking at ourselves in the mirror when looking at the spoon in the glass that seems broken, the rearview mirror the sudden glare, and so forth. Learners who still have not been able to understand better the properties of light must be wondering as to the phenomenon. The above statement proves that the study of the features of view is essential for learners.

Based on some of the above issues, the need to develop media that correspond to the needs of learners. The learning process can be successful; learners should be encouraged to take advantage of all the tools senses. The teacher can try to display stimulus that can is processed for various reasons. Thus, students are expected to be able to receive and absorb quickly and well the messages in the material presented (Azhar, 2013). From these statements, it can conclude that the teaching and learning process would carry out well if the material delivered with audio-visual media that involves not only one sense tool, such as using vision (visual) and hearing (audio).

Video is a tool that can provide information, explain the process, explain complicated concepts, teach skills, abbreviate or slow down time, and influence attitudes (Arsyad, 2013). Slamet say that learning is a process conducted by a person attempt to acquire a new behaviour changes as a whole, as a result of his own experience in interaction with the environment.

According to Degeng (Asyhar, 2012) which states that learning is essentially an attempt to learn the learner (children, students, learners). The systematic process, there is a communication which is an absolute element, with the real learning process is a process of communication. The critical components that determine the effectiveness of the learning process are the teachers, students, materials, methods, media, and the situation. Munadi in Asyhar (2012) suggests, the process of communication in education occurs because there is a plan and purpose desired. Communication between teachers and students in learning to use your media effected.

Instructional media researchers developed according to the needs of such learners are powtoon based learning media. Video media called powtoon is innovation, and media is not tricky in making presentations in the form of animation that moves, sounds back, and transi-

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tions that make the subject matter useful and exciting for students so that they are easier to understand and understand (Graham, 2015). Powtoon is a program used by Internet users to deliver messages. Powtoon learning media, including multimedia instructional press because there are audio, visual, and animated motion, can increase the willingness of learners to pay more attention.

Excess powtoon application is easy and practical to use by the teacher; the teacher just made a video through the website only. Also, presentations alive with various animations that are already on the website powtoon. Using powtoon application, students are more familiar with more profound circumstances of the properties of light significantly.

Previous research and develop media-based learning powtoon done by Asyifa (2018), which states that the instructional videos created by powtoon fit for use and may improve the understanding of mathematical concepts learners. Differences research conducted by previous research. Namely, 1) the material contained in the instructional media are the properties of light, 2) The longer duration of the video, which is approximately 6 minutes, 3) animation being used more and varied, 4) the learning process using the Student Center 5) to add voice support to clarify the material presented.

Based on these problems, researchers conducted a study entitled "Development of Learning Media Based on the Concept Powtoon Light properties for Elementary School Students."

RESEARCH METHODS

This type of research is research and development. Steps are to be taken, among other things, problem analysis, data collection, product design, product design validation, product revision, and the last is a test product. The report includes an analysis of curriculum issues and requirements analysis. Collecting data using a literature study and questionnaire. Product design aims to create a media plan that will generate. Next is the validation of product design by media validation and validation of material. Once validated, the next product to being revised to tested. The following stages used Sugiyono (2011):

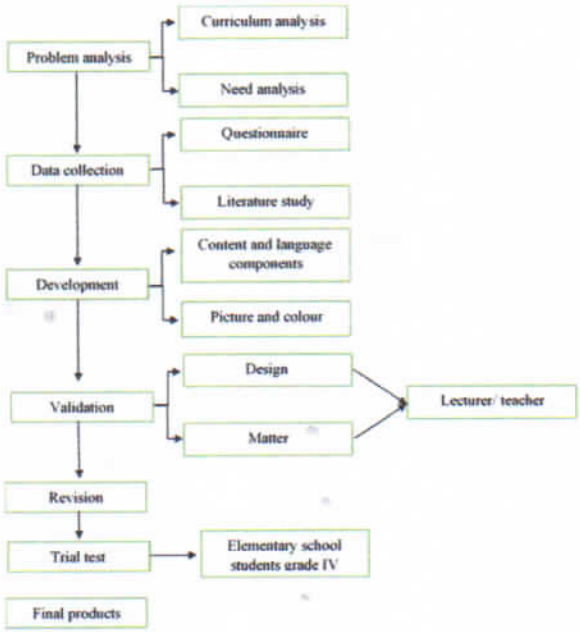

Figure 1. R&D step

The subjects of this study were 20 IV grade students at Serang 3 Primary School, to find out the responses and the results of students' understanding after learning to use the powtoon-based learning media. As a reference to the researchers' understanding test, using the limits of the KKM (Kriteria Ketuntasan Miniman) found in schools.

Data collection instrument in the form of expert validation sheet media, subject matter experts, and sheets questionnaire responses of learners, as well as the last administration comprehension test (post-test).

Table 1. Interpretation of eligibility criteria
Source : Ridwan (2009)

Qualitative value	Score
0% <NP≤ 20%	Very unfit
20% <NP≤ 40%	Not feasible
40% <NP≤ 60%	Fairly decent
60% <NP≤ 80%	Worthy
80% <NP≤ 100%	Very decent

The powtoon-based learning media will be declared feasible if it gets a validation score based on the interpretation of the feasibility score> 60%. In the questionnaire responses of

students consisting of positive and negative questions, the rating given can see from the following table 2.

Table 2. Criteria for scoring student response scores (Sugiyono, 2011)

Statement	Agree	Disagree
Positive statement	2	1
Negative statement	1	2

Values obtained and interpreted following the criteria specified in the table 3.

Table 3. Criteria category interpretation (Ridwan, 2009)

Percentage	Interpretation
0% <NP≤ 20%	Very less
20% <NP≤ 40%	Less
40% <NP≤ 60%	Enough
60% <NP≤ 80%	Well
80% <NP≤ 100%	Very good

RESULT AND DISCUSSION

Product design creation phase, several stages consist of making a storyboard, determination of themes, and weave. In powtoon based learning media are core competencies, essential competencies, indicators, materials, and there are three sample questions. The teaching and learning process using powtoon-based learning media refers to the learning process contained in the 2013 Curriculum, which is learning with a scientific model wherein powtoon-based learning media there are observing, asking, gathering information, discussing, and associating. After performing these activities, the students do exercises contained in the video. After doing the initial draft, the researchers made with the PowToon online services. Researchers chose an appropriate theme in the development of learners and the purpose of making the media used in the learning process. Subsequently, select template, colors, characters, animation, text, and sound that tailored to the learning objectives. The music given that the instrument's background sounds and dubbing for an explanation of the material contained in the media. Powtoon based learning media using compatible .mp4 format media played using either a PC or other media. The sound given that the instrument's background sounds and dubbing for an explanation of the material contained in the press. Powtoon based learning media using compatible .mp4 format media played using either a PC or other media. The sound given that the instrument's background sounds and dubbing for an explanation of the material contained in the press. Powtoon based learning media using compatible .mp4 format media played using either a PC or other media.

The validation process carried out before the test. Powtoon based learning media expert validation and validation media which matter experts to knowing feasibility of the learning media. Validation of experts conducted by the University of Sultan Ageng Tirtayasa Lecturer, University Lecturer Raya Serang, and fourth-grade teacher. Here are the results of recapitulation in Table 4.

Table 4. Data rate validation expert media

Expert	Score	percentage	Information
I	90	90%	Very decent
II	79	79%	Worthy
III	95	95%	Very decent
Average	88	88%	Very decent

Validation of material done by Yogyakarta State University Lecturer, Lecturer University of Sultan Ageng Tirtayasa, and fourth-grade teacher. Here are the results of recapitulation of subject matter experts in Table 5.

Table 5. Data rate validation expert content

Expert	Score	Percentage	Information
I	71	71%	Worthy
II	77	77%	Worthy
III	92	92%	Very decent
Average	80	80%	Worthy

After validating media experts and subject matter experts, researchers revised the product following the advice given by the validator. The information provided to media experts is the addition of the power on the back sound to be more passionate and powerful, the addition of video/image in context to be closer to our daily activities. In contrast, improvements from material experts, namely advance in the context of the explanation on the nature of light, can are be reflected and refracted and changes in the understanding of light and the addition of questions. On expert validation, powtoon based learning media in getting the result, namely 88% on media expert (very worthy) and 80% on a subject matter expert (well worth it).

Next is the stage of trials conducted to the fourth grade 20 learners in primary schools Foreign Attack 3. Process media learning-based learning using Powtoon implemented the proper and visible enthusiasm of learners. After the learning process, the researchers provide post-test questions to students, in giving this matter, the results can be seen in Table 6.

Table 6. Data comprehension tests of students

Number problem	Final score	Average	Information
1	98,75		Very good
2	81,25		Very good
3	97,5	89,25	Very good
4	92,5		Very good
5	76,25		Very good

Understanding the test results obtained after studying receipts based media powtoon get an average grade 89.25, which is relatively good at the top of the KKM is 75. Furthermore, researchers wanted to see how the response of students having studied with the powtoon based media learning. Questionnaire responses also are filled by the 20 learners in grade IV Elementary School Attack 3. Following the recapitulation questionnaire responses of learners, can be seen in Table 7.

Based on the aspects assessed in the questionnaire responses of learners to acquire media-based learning powtoon excellent results,

Table 7. Response results of students

Information	Total score	Percentage
Content/ material	195	97,5%
Language	40	100%
Presentation	119	99,2%
Graphics	40	100%

reaching 98% and based on the response criteria based media learning powtoon otherwise excellent.

Based on the research that has been conducted by the researchers, the results of the questionnaire stated that the learning facilities provided by the school are sufficient, but not used the maximum. They are the reason why the fourth-grade teacher at the elementary school, Serang 3, approved the development of instructional media powtoon based on the concept of the properties of light. During this learning process is done on this concept of teachers using textbooks and worksheets with conventional commonly on sale in the market, not using instructional media that utilize school facilities such as LCD projectors. The use of the media on student learning will improve learning outcomes compared to not using the press (Wati & Maureen, 2015).

Accordance with the previously stated by Edgar Dale in (Azhar, 2013) study using multiple senses that view and hear will benefit learners. It also explained that for the learning process to be successful, it invites students to utilize all of their feelings. In addition to having many benefits for the learning process, the video is a tool used to display images at once sound at the same time (Sukiman, 2012) so that the learning process will run smoothly and optimally.

Development powtoon based learning media packed with an exciting design for learners. The selection of the background colour and design adapted to the development of learners. Not only the colour of the design, but the researchers also pay attention to the selection of fonts and colours to be used. Learning media also include activities or the actions of learners like to observe, ask, gather information, discuss, and reiterated what ware ob-

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tained from the results of discussions with friends group. This learning process, based on the curriculum used by the school, is the dominant Curriculum 2013 student centre, where the learners themselves dominate the learning process.

Powtoon based learning media is using language that is appropriate to the level of development of learners. Sentences used in a simple instructional video, communicative, structure, and interactively (Sanjaya, 2012: 90). Language is the main staple in conveying the message, so both researchers can transmit the message or information to choose the appropriate language and do not change the concept of matter it self.

Judging from the needs of learners in the study period, researchers make media development based on the concept of this powtoon properties of light. Where in the learning process, learners are encouraged to be more active in collecting video information following the benefits of learning in general. These instructional videos can help learners to bring objects that are difficult to be presented in the learning process. According to Asyifa (2018), learning to use the video will further enhance the students understanding when compared to not using video.

The learning process presented there is activity observed, which according to (Hamzah, 2013) with the method of seeing learners will feel more challenged to explore their curiosity in the phenomenon presented in the learning media. After the students watched, the students were directed to frequently asked questions and gather information. Once learners perform frequently asked questions and collect data, the students gave time to discuss with his friend to seek additional information where the results of the information gathering learners will share it with his friends, namely by presenting its findings to the class.

Achievement or eligibility based learning media powtoon proven through validation of media experts and subject matter experts with the views of some aspects such as aspects of appearance, the design of video content, usability and utilization contained in media experts and criteria for the presentation of the content, performance, and language provided in the ahi Theory. Based on the results of expert validation of all aspects of media-based learning powtoon otherwise excellent condition. It is also in support of the effects of research conducted by Meinanti (2018), which obtains available and valid data used in the learning process.

Table 8. Average score of validation expert

Results validation	Percentage	Category
Expert media	88%	Very decent
Expert content	80%	Worthy
Average score	84%	Very decent

The following explanation shows that media-based learning powtoon for learners in primary schools has been excellent, according to media experts and subject matter experts in the subject matter experts are already contain an assessment of the aspects of the language. Based on these results, powtoon decent media-based learning is used in the learning process to support science teaching in the concept of the properties of light.

Powtoon based learning media tested on March 20, 2019, to 20 learners Attack Elementary School fourth grade 3. The average obtained in the test of this understanding is 89.25, which indicates an excellent knowledge of the category. On this understanding, researchers test scores the lowest and highest 70 100. Using instructional media such as video can enhance the knowledge of learners compared with the conventional learning process used to do, (Anindyawati, 2013; Sa'adah et al., 2017; Sumantri & Oktavera, 2015; Buchori & Cintang, 2018; One, 2015; Suhendra et al., 2018). Overall understanding of students on each item the category of very good except on item number 5, which entered into either type. The excellent knowledge of learners lies in item number 1, with a value of 98.75. Judging is from the results of the test students understanding of the above, the average grade is 89.25, which gets taken into the outstanding category.

Learners make the filling a questionnaire to

evaluate the response of learners towards learning by using instructional media powtoon based on the concept of the properties of light. Furthermore, the results obtained from the learner response are the percentage value of 97.5% on aspects of the content, 100% on the language aspect, 99.17 on elements of the presentation, and 100% on the point of graphics. It can conclude that the results of the response of students scored 98% and the percentage included in the first category. It can deduce that the learners have a high interest in powtoon based learning media. They are based learning media powtoon increase the motivation of learners as proposed by (Anggraeni, 2015).

CONCLUSION

Based on the results, it can conclude as the following: (1) The development of instructional media powtoon based on the concept of "SIFACA" This is base on the development procedure proposed by Borg and Gall had developed back by Sugiyono. The development process through six stages, namely: a) Analysis of Problems, b) Gathering Information, c) Product Design, d) Design Validation, e) Revised Product, and f) Trial Product. Tests performed at the fourth grade 20 learners in primary schools Attack 3. (2) This learning media is the last product that has undergone a process expert testing and revision. Validation this done to validate the media and materials that get an average value of 84 in the category of "very decent." (3) The use of powtoon-based learning media in the learning process gets an average grade of 89.75 with the type of "very good" (4). Students' responses obtained with a percentage of 98% included in the "excellent" category.

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