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THE USE OF POWTOON ANIMATION LEARNING MEDIA ON STUDENTS' LEARNING MOTIVATION IN MATHEMATICS LEARNING

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Abstract

Mathematics is often considered an abstract subject because it involves concepts and symbols that can be difficult to understand directly or physically. However, using animated media such as Powtoon can help overcome this abstraction and make mathematics learning easier to understand and interesting by creating Powtoon-based animated learning media. Powtoon is a popular animation platform used to create presentations, promotional videos and other animated videos. With Powtoon, you can create attractive animations using various graphic elements, characters, and transition effects. In the research that has been done before, many studies say that to overcome boredom so that students are motivated while learning, the use of learning media is considered to make students easier to understand the material and make teaching and learning activities carried out more efficiently in implementing the learning process, especially in learning mathematics is by make interesting learning media. This study aims to analyze the use of Powtoon learning media on students' learning motivation in learning mathematics. This research is a qualitative research with descriptive analysis using library research. The data collected is the result of searching electronic journals through the library's Google Scholar. From the research results of 15 relevant articles, it shows that the Powtoon animation learning media is useful for increasing students' learning motivation in learning mathematics.

Keywords: *Learning Media, Powtoon Animation, Learning Motivation, Math Learning*

INTRODUCTION

Mathematics is a subject that studies numbers, calculations, patterns, and the mathematical relationships between concepts. This subject is one of the most important subjects in education because it has many applications in daily life and in various fields of science. This is in accordance with the opinion of Arimby et al (2022) who stated that mathematics is one of the most important sciences and is widely used in daily life.

Law Number 20 of 2003 concerning the National Education System, article 37 emphasizes that mathematics is one of the compulsory subjects for students at the primary and secondary education levels. Regulation of the Minister of National Education Number 22 of 2006 concerning content standards, states that the purpose of mathematics subjects is to have the ability to understand mathematical concepts, use reasoning, solve problems, then communicate ideas well, and have an attitude of appreciating the usefulness of mathematics in daily life (Atsnan & Gazali, 2018).

In the application of mathematics learning, teachers tend to use the lecture method. Where the teacher only explains to students about the learning material and then ends with practice questions. Students tend to get bored quickly when faced with the implementation of mathematics learning with the lecture method, especially students' views on mathematics as a subject that is difficult to understand. This is in accordance with the opinion of Kumsiyati et al (2018) stating that one of

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the main problems in the world of education is the low quality of education which is reflected in the low average academic achievement. Many assume that mathematics is a difficult subject so that mathematics falls into the ranks of subjects that are not welcome. This leads to a decrease in students' ability to understand mathematics subject material. So that it has an impact on students' ability to construct the material obtained into their daily lives. Amelia et al (2022) stated that when students feel that the learning material is difficult, it will reduce students' motivation to learn. When students' motivation to learn decreases, students' interest in learning will decrease. Students become passive in learning, students will only follow the learning process without being able to understand the material presented. In fact, learning motivation is very important for every student to have so that every student is encouraged to carry out the learning process.

Motivation comes from the word "motive", which means the reason for doing something, a force that causes a person to move to do an activity. According to Masni (2017), Motivation is a basic motivation that moves a person in behaving in achieving a goal. Meanwhile, according to Suprihatin (2015), Motivation can be interpreted as a person's strength (energy) that can cause a level of willingness to carry out an activity. Will that comes from within the individual himself (intrinsic motivation) and from outside the individual (extrinsic motivation). How strong an individual's motivation is will largely determine the quality of the behavior he displays, both in the context of studying, working and in other lives. Therefore, it can be concluded that learning motivation is an encouragement that arises both from within and outside students that is able to generate enthusiasm and enthusiasm for learning and provide direction to learning activities so that learning goals are achieved.

In relation to learning activities, motivation is very closely related to the need to actualize oneself so that motivation has a great influence on student learning activities. Laziness will arise at any time if a person does not have motivation, such as during lessons, independent or individual study, or when doing assignments from the teacher. Likewise, with students who have high motivation to learn, of course, there will be an intention to learn, do assignments, build learning intentions, usually by starting to make a study schedule and will carry it out diligently and regularly (Lomu & Widodo, 2018).

Fadillah and Baist (2017) found that motivational skills are one of the aspects that support students' intellectual development that is important to pay attention to in the learning process. Because students are highly motivated, their intellect develops faster. In determining the learning implementation strategy that will be used later, it should be adjusted to the material taught because it will greatly affect the learning motivation of students. One of them is by using interesting learning media in the learning process, especially in mathematics learning.

It has now entered the era of the industrial revolution 4.0. The era of the industrial revolution 4.0 has changed the concept of work, work structure, and competencies needed by the world of work. Education 4.0 is an education influenced by the industrial revolution 4.0, characterized by education that utilizes digital technology (*cyber system*) in the learning process (Surani, 2019). Furthermore, Surani explained that the demands of the world of work in the industrial era 4.0 can only be met if graduates become human resources forged from the educational process that meets the 4.0 education standards, which are based on *cyber systems*. Thus, it is necessary to play the role of educational technologists in facilitating the learning process by providing technology-based learning resources.

When it comes to current technological advancements, technological developments in the world of education are inevitable. The world of education today uses a lot of technology to facilitate the learning process. These technological advances are used as a medium for learning. Current learning tends to be monotonous with teacher-centered lecture methods. Today's technological advances are certainly widely used by teachers in the learning process to increase the enthusiasm and interest of students to be enthusiastic in the learning process so that students are not saturated and have high learning motivation. One way to avoid boring math learning for students is to take advantage of technological advancements to become an engaging learning medium. Learning media is a tool used by teachers when teaching which has a function as a support for learning activities carried out by a teacher (Nurraita, 2018).

In mathematics learning, the reason for the learning difficulties experienced by students in mathematics subjects is because mathematics is abstract, which is what causes mathematics to be considered opposite to student development (A. S. Manurung, 2018). In order for students to be motivated when learning, the use of learning media is considered to make it easier for students to understand the material and make the teaching and learning activities carried out more efficient because of the attractive, fun, easy to understand, and practical nature of the learning media itself which is interesting, fun, easy to understand, and practical to use anywhere and anytime (Amelia & Manurung, 2022).

The importance of learning media in mathematics learning will make it easier for students to understand the concepts learned, because the learning involves physical and mental activities with the activity of seeing, touching, and manipulating props (Sabilla et al, 2020). The use of appropriate learning media in the teaching and learning process can generate motivation and stimulation of learning activities that come from within the students (Widiasih, 2017). From the many learning media that exist, it can be determined according to the characteristics of the students and the meter being studied. The learning media that can be used as an option to be applied is technology-based media using animated videos on the Powtoon application.

Delviana (2017) explained that the Powtoon application is an internet-connected application or online web apps that can present presentations or material exposures. The display is in the form of videos that contain various animations that can attract the attention of students. This application can be accessed by anyone, including teachers and students, and the way to make animated videos is quite easy because the available features are quite complete such as handwritten animations, cartoon animations, and more vivid transition effects as well as very easy timeline settings. Almost all features can be accessed on a single screen and can be used in the process of creating a presentation or presentation. This is what makes the Powtoon application increasingly used in the world of education (Kholilurrohmi, 2017).

The powtoon application has several advantages, namely; (1) the percentage of videos produced meets various aspects of the senses, (2) the video produced is interactive, (3) practical to use, (4) collaborative, (5) can be used together, (6) triggers feedback in learning activities that take place, (7) practical, easy to use, (8) can increase the motivation of students to learn (Suhendra et al., 2020). Learning using Powtoon learning media has a very good impact on enthusiasm and can attract students' interest in learning. The role of using Powtoon learning media can make students better understand lessons and arouse enthusiasm for learning. With an interesting learning atmosphere, students can influence students' learning interests (Ariyano, R., Kantun, S,. Sukidin: 2018). Furthermore, Qurrotaini et al

(2020) stated that the use of video learning media based on Powtoon animation can increase students' interest in learning online. Therefore, it can be concluded that Powtoon animation has a very good effectiveness on enthusiasm and can attract students' interest in learning. Based on these things, the purpose of writing this article is to describe the use of powtoon learning media on students' learning motivation in mathematics learning.

METHODS

This research is a qualitative research with descriptive analysis with *library research*, where the researcher tries to describe the use of powtoon learning media in mathematics learning on students' learning motivation in mathematics learning. The data sources in this study are in the form of articles published in national journals, seminars and required documents. The source of the document chosen as a reference is in the form of thesis, journals and others in accordance with the formulation of the problem raised by the researcher.

The research technique carried out by the researcher in conducting research is to look for journals, articles and books related to the title and support the discussion. Journals, articles and books that can be read and understood in order to find conclusions from the results of previous research. The data collection procedure in this article is carried out by searching for 15 journals and articles on google schoolar to support the discussion. The data analysis method used is in the form of content analysis and secondary data analysis, namely by utilizing secondary sources and then concluded in order to obtain the data needed in writing this article.

RESULTS AND DISCUSSION

Powtoon Animation Learning Media

Learning media is a medium used for the learning process, including teaching aids and means of conveying information to recipients (students) of learning information based on learning resources. Learning media can display learning realities to students on behalf of teachers in an exclusive way. If a media design is made and presented appropriately, the media can play this function even without a teacher (Astuti et al, 2020).

Powtoon is an online app that lets you create a presentation or animated video that isn't difficult. Powtoon has unique and interesting features, namely animations that contain text features, animations that contain images and transitions that can move with time. Through powtoon, anyone can create animated videos easily, instantly and attractively (Yuhdi, 2018).

The following are some of the benefits of Powtoon learning media (Astuti et al, 2020):

a) Explain the process of a command not to be focused verbalistically (only in written or verbal form).
b) Overcoming the limitations of space, circuits and senses, for example: objects that are too large can be replaced with reality, images, film frames, films or models; by using an assistive device.
c) Time-lapse photography or high-speed photography can help with actions that are too slow or too fast. Events that occur in the future may be reproduced in the form of video films, videotapes, photo frames, photographs, or oral forms; Objects that have unity can be represented by models, diagrams, etc.
d) Designs that have a wide viewing angle can be visualized through film, film frames, images, etc.

Aggita (2020) further explained that the Powtoon application has many interesting features in it such as if we want to create a presentation using Powtoon, we can create it in the form of slides or text effect films, and can add images, characters, animations, properties, markers, shapes, transitions, backgrounds, and many other styles that can make the slideshow truly unique. Then there are several templates that are already provided and ready to use in Powtoon. In addition, we can also choose templates from the categories of schools/education, statistics, events, about us, explorer videos, specials, tutorials, and animated greeting cards. Not only that, but Powtoon also provides a blank template to start the presentation. The app can share video animations with anyone through public links like YouTube, Facebook, and others. Then, Powtoon can also download animated presentations as PDFs or Power Point (PPT) files. Powtoon can also support sending presentations directly to YouTube.

Powtoon media has its advantages and disadvantages. According to Anggita (2020), the advantages and disadvantages of Powtoon media in learning are as follows:

Advantages of *Powtoon* Media in learning:

1. Interaktif
2. Encompasses all aspects of the senses
3. Its use is practical
4. Collaborative
5. More varied
6. Can provide feedback
7. Motivate

Meanwhile, the shortcomings *of Powtoon* Media in learning:

1. Dependence on the availability of technological support must be adjusted to existing systems and conditions.
2. Reduce creativity and innovation from other types of learning media.
3. Requires professional Human Resources (HR) support to operate it.

Based on the above explanation, the researcher concludes that Powtoon animation learning media is a solution to make presentations or learning videos more interesting so that students have great motivation to learn, especially for mathematics lessons.

Learning Motivation

Motivation is the will, will, desire, power that drives a person to do something. Experts and psychologists agree that motivation is very important for the success of students learning (Warti, 2016).

Meanwhile, according to Muhammad (2017), Motivation is a change in energy in a person which is characterized by an impulse that comes from a person to achieve a goal. The impulse and reactions of efforts caused by the need to excel in life. This makes individuals have effort, desire and encouragement to achieve high learning outcomes.

Furthermore, according to Hamzah B. Uno (2016), Motivation is an impulse that arises from the presence of stimuli from within and outside so that a person wants to make changes in certain behaviors/activities better than the previous situation.

According to Sardiman (Darmawati, 2013), the learning motivation that exists in each person has characteristics. The characteristics of a person who has high learning motivation are as follows:

a. Diligent in facing tasks (can work continuously for a long time, never stop before completion).

b. Tenacious faces difficulties (does not give up quickly). does not need external encouragement to perform as well as possible (not quickly satisfied with the achievements he has achieved).
c. Showing interest in various issues.
d. It is more convenient to work independently.
e. Quickly get bored of routine tasks (things that are mechanical, repetitive so much that they are less creative).
f. Can defend his opinion.
g. It is not easy to let go of that belief.
h. Enjoys finding and solving problems.

According to Prayitno Sardiman (Warti, 2016) said that the function of motivation in PBM is:

1) Providing optimal conditions for learning to occur.
2) Strengthen students' enthusiasm in learning.
3) Arouse students' attention so that they want to learn.
4) Remind students to be willing and find and choose the appropriate path/behavior to support the achievement of learning goals and long-term life goals.

Based on the above explanation, it can be concluded that learning motivation is an energy boost for students to be more enthusiastic and happy in the learning process.

The Utilization of Powtoon Animation Learning Media on Students' Learning Motivation in Mathematics Learning

Data from the search results related to the use of powtoon animation learning media on students' learning motivation in mathematics learning were obtained in 15 research articles. The data is processed by summarizing and determining the essence of the results of previous research. The results of the analysis related to the use of powtoon animation learning media on students' learning motivation in mathematics learning are as follows:

Based on research conducted by Astika et al (2019), it was stated that based on the results of the validation questionnaire, mathematics learning media assisted by the powtoon application was obtained an average of 3.64 by material experts, and 3.47 by media experts with very interesting criteria. Meanwhile, the results of the small-scale trial student response test obtained an average score of 3.39 and the large-scale trial with an average score of 3.40 with very interesting criteria. Judging from the results of the effect size test, an average of 2 classes were obtained with a score of Es = 0.92 categorized as effective and Es = 0.59 categorized as quite effective.

Based on research conducted by Sabilla et al (2020), student response data to mathematics learning media using powtoon animation is relatively positive. Most students feel happy and motivated to take part in learning using math learning media based on powtoon animation because it is a new thing.

Based on research conducted by Garsinia et al (2020), learning media was tested with SPLDV material with teachers opening learning first and students being told to be able to listen to the video material to be given using animated videos. In the learning process, students focus more on the material presented by using animated videos, displaying moving cartoons, sounds, and slides that make students more motivated to understand the subject matter, so that teachers can monitor students during learning.

Based on research conducted by Subkan & Winarno (2020), from the students' learning outcomes, it was concluded that there was an effectiveness of learning

outcomes using powtoon media. This is because learning using powtoon media is more interesting according to the results of large group tests with a technical design score of 90%. So that it can increase students' motivation in learning the material presented. Furthermore, this powtoon media also uses language that is communicative to students so that the KPK and FPB materials delivered are easy to understand.

Based on research conducted by Priskilah et al (2021) by applying Powtoon learning media that has an influence on the class being tested. With the use of Powtoon learning media in the mathematics learning process in multiplication materials runs effectively. This can be said because students seem to be more focused on the material delivered with learning videos using the Powtoon application that has been created.

Based on research conducted by Widiyaningsih & Sulisworo (2021), based on the results of validation and refinement from experts, it can be concluded that PowToon multimedia is categorized as suitable for use and can improve students' critical thinking. PowToon, which was used in grade VIII of Nurul Mutaqin Kemiri Junior High School, with materials to build a flat-sided room, motivated students to watch PowToon videos as math lessons during the Covid-19 pandemic.

Based on research conducted by Sari & Ganing (2021), it is stated that media design and design are one of the important components in media production. Media with an attractive design will be able to attract students' interest and motivation to learn. The determination of design and media design can also be adjusted to the characteristics of students, where students who are at the elementary school level will tend to like something that has interesting pictures and animations. Based on the results of research analysis and discussion, it is concluded that problem-based learning powtoon learning media is very feasible to be used in learning activities for grade V elementary school students in motivating and improving student understanding.

Based on research conducted by Suyanti et al (2021), in grade III students at SDN Kebonalas, it was concluded: 1). In each cycle, there was an increase in learning motivation through the use of powtoon media in learning in cycle 1, namely 71 to cycle 2 of 84.2). The use of powtoon media was not only able to increase student learning motivation but also increased student learning achievement in cycle 1 by 72.88 in cycle 2 to 89.90.

Based on research conducted by Asih & Ujianti (2021), it is concluded that learning videos assisted by the Powtoon application are declared effective and feasible to support the teaching and learning process, because students are better able to understand the material and are more motivated in learning. The Powtoon application can be used as an inspiration for teachers in innovating related to online learning media and as a means of carrying out teaching and learning activities. Furthermore, students can be used as a source or means of learning to facilitate understanding of learning materials, create a pleasant learning atmosphere, and increase learning motivation, especially Mathematics learning.

Based on the research of Amelia & Manurung (2022), based on the research conducted, it was found that the results of the prerequisite test analysis on the pre-test and post-test data of students were normally distributed. Furthermore, the hypothesis in this study was tested using a t-test and obtained and , so it can be said . Thus, it can be concluded that the audiovisual learning media of powtoon has an influence on the learning motivation of 3rd grade students of SDN 05 Grogol.$t_{hitung} = 3.121 t_{tabel} = 2.084 t_{hitung} > t_{tabel}$

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Based on research conducted by Kusumawati & Setyadi (2022), PowToon-based mathematics learning media is effective to be used as a learning medium. The results of the Wilcoxon test showed that there were differences in learning outcomes before and after PowToon-based learning videos were implemented, meaning that learning outcomes after PowToon-based video media were implemented better than before PowToon-based learning videos were implemented.

Based on research conducted by Aliyah & Purwanto (2022), the use of Powtoon learning media for mathematics subjects with multiplication material was successfully applied to grade II students at SDN Jatiwarna 3 in teaching and learning activities. Based on the data from the research that has been carried out by researchers, it can be said that Powtoon learning media can foster students' enthusiasm for learning or student learning motivation, so that it can affect the learning outcomes of grade II students in mathematics subjects.

Based on research conducted by Tiwow et al (2022), the application of powtoon animation learning media affects learning interest and the application of powtoon animation learning media also improves mathematics learning outcomes. For classes of students who have a high interest in learning, the mathematics learning outcomes in classes taught with powtoon animation learning media are higher than classes taught with conventional learning media.

Based on research conducted by Harahap (2022), the PowToon-based mathematics learning media used in PowToon audiovisual media is very practical and can be used anywhere and anytime, so that students are able to learn independently. The presentation of videos is concise and not too long so that students' motivation to learn does not decrease. Interactive presentation using language that is easy for students to understand. An interesting application that is able to produce better image, sound, music, and video quality than previous research products.

Based on research conducted by Yuliyanti et al (2022), referring to the N-Gain value in the form of percent (%) and a descriptive output table, we can see that the average (mean) N-Gain score of the motivation measurement scale in the experimental class by applying powtoon learning media obtained a score of 57% included in the category of quite effective. Meanwhile, the average score of N-Gain score when measuring motivation in the control class without the application of powtoon learning media obtained a score of 49%, which is included in the less effective category.

CONCLUSION

Based on previous studies related to the use of Powtoon-based learning media, it can increase students' learning motivation so that it can improve learning outcomes or student learning achievement as well. Powtoon's role in students' learning motivation is very meaningful, especially in mathematics learning. In general, Powtoon is more suitable for learning at the elementary school level. This is because Powtoon media has attractive visuals so that elementary school students tend to be more enthusiastic in understanding the material so that it triggers their learning motivation. Powtoon media can also entertain students with the addition of interesting narratives, interactive elements such as the use of interesting characters so that students can feel more involved in learning math. Using various features in Powtoon can help students be actively involved in the learning process and of course increase their learning motivation in understanding and applying mathematical concepts.

But in addition, the application of Powtoon media as a learning medium can experience obstacles in its use such as limited access and technology in schools such as access to computer devices and unstable internet connections. Creating animated media content using Powtoon also takes quite a long time, especially if you have no prior experience. Teachers need to carefully consider the use of their time in creating quality Powtoon media, especially when they have strict time constraints in the curriculum. Powtoons should also be used carefully to fit the learning objectives and curriculum set. Teachers need to ensure that the use of Powtoon is not only entertainment, but also supports the appropriate math learning process.

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