

# Students' Perceptions of Learning Using Powtoon Based on Gender in SMP/MTS

Fajriana<sup>1\*</sup>, Safriana<sup>2</sup>, Nurdin<sup>3</sup>

<sup>1</sup>Department of Mathematics Education, Universitas Malikussaleh, Aceh, Indonesia

<sup>2</sup>Department of Physics Education, Universitas Malikussaleh, Aceh, Indonesia

<sup>3</sup>Department of Informatics, Universitas Malikussaleh, Aceh, Indonesia

\*Corresponding author E-mail: [fajriana@unimal.ac.id](mailto:fajriana@unimal.ac.id)

Manuscript received 5 Nov 2021; revised 10 Nov 2021; accepted 1 Jan 2022. Date of publication 10 Jan 2022

## Abstract

Perception is an individual observation or process giving meaning as a result of observations about an object, event, and so on through his five senses, which is obtained by inferring information and interpretation of messages so that someone can provide feedback about the good or bad or the positive and negative of it. The use of animation media in learning other than providing many conveniences, there are also obstacles, causing various student perceptions. Students' perceptions of the use of learning media can be seen by gender. This study aims to determine students' perceptions of learning using animation/powtoon in SMP/MTs based on gender. Based on the data collected, this research is descriptive with a qualitative approach. The data collection method in this study used a questionnaire in collecting data from primary and secondary sources. In this study, the primary data was the result of a perception survey through a questionnaire conducted to SMP/MTs students. In contrast, secondary information is obtained from a literature review regarding online learning systems and virtual classes. The data analysis technique uses percentages. The results of data analysis are presented descriptively in the following subchapter. Based on the results of research and discussion, it has been known that students' perceptions of learning mathematics using Powtoon media are perfect. Both male and female students positively perceive learning mathematics by using Powtoon-based learning media in SMP/MTs. Students get an average student answer of 100% and fall into the "Very Good" category. It explains that animation media is beneficial for students in understanding the lesson.

**Keywords:** Perception, Students, Learning Media, Powtoon.

## 1. Introduction

Improvement of human resources can be done through education. Education functions as a means and facilities that make it easier, able to direct, develop and guide towards a better life, not only for oneself but also for other humans. According to [1] educational goals are classified taxonomically as cognitive, affective, psychomotor and intuitive. Education is one of the main instruments in the development of human resources who have cognitive, affective, and psychomotor dual abilities. Therefore, the implementation of education requires careful planning and implementation so that the expected progress of a nation is achieved optimally. The progress of a nation is determined by the level of knowledge developed in the lives of its citizens. One of the knowledge possessed by humans is in the form of scientific knowledge or commonly referred to as science [2]. Mathematics is one of the sciences that must be studied because it can be applied and can help everyday people [3].

Mathematics has a very important role in life. The development of information and communication technology today is inseparable from the existence of mathematics. Learning mathematics has a relationship with understanding the concepts being studied [4]. According to the 2013 curriculum, understanding concepts is very important for students to master. Concept understanding is an ability to master the material and the ability of students to understand, absorb, master, and apply learning. Based on Government Regulation No. 19 of 2005 article 19 paragraph 1 (President of the Republic of Indonesia, 2005), in learning it is expected that educators can use methods and media that are able to actively involve students and create a fun, interesting, and interactive atmosphere that is adapted to the stage of development of thinking, characteristics and conditions of student learning. So, to realize this goal, a teacher must have skills in choosing, using good learning methods and the types of media used in order to support students' understanding of the concepts presented. The use of media in learning can arouse students' thinking processes from concrete thinking to abstract thinking [5]. Video is one type of learning media used in schools so that students can more easily understand the learning material.



The use of learning media and technology has basically been prepared by educators before the implementation of learning takes place. However, its use only revolves around the media as a tool and has not been directed at the media as a learning resource [6]. So, learning media is a tool used in the teaching and learning process so that students can easily understand the material. In the learning process, the media is one of the strategies to attract students' interest in learning [7]. This research was conducted at one of the boarding schools in North Aceh Regency. This research was conducted to see the perception of students in learning by using learning media. Where is the perception of students from what is expected and from past experiences as well as the existence of a motivation [8]. The research has been observed before the class. By distributing questionnaires or questionnaires to the two classes and it has been carried out in male and female classes.

## 2. Literature Review

Education is an effort to prepare the younger generation to welcome and face the times in the global era. So education must be implemented as well as possible so as to produce quality education and increase the quality of human resources. Learning media is an important element in the learning process. Learning media is a learning resource that can assist teachers in enriching students' insights, with various types of learning media by teachers, they can be used as material in providing knowledge to students [6] [5]. The teacher is the manager of the teaching and learning process where in this case the teacher is tasked with directing student learning activities in order to achieve learning objectives. By only using traditional or conventional teaching models, where the teacher stands in front of the class and then explains about the subject, of course it is less effective. For students who pay attention, it is not a problem. But if there are students who for some reason cannot follow the lesson, then the student will miss the subject [7][9]. To achieve this goal, a teacher must have skills in choosing, using good learning methods and the type of media used in order to support students' understanding of the concepts presented [5] [3]. Various components of teacher mastery in implementing the learning process supported by media and learning technology are assumed to be able to improve student learning achievement. Media and educational technology in question are everything that can be used as a learning tool to achieve goals [1] [10]. One of the efforts made in learning is to design systematically, by empowering learning technology and learning media in the classroom. Thus, it is necessary for the commitment of teachers to place more emphasis on empowering learning technology and learning media in the classroom [11] .

According to Hamidjojo, what is meant by media are all forms of intermediaries used by people to spread ideas, so that the ideas reach the recipient. Meanwhile, McLuhan provides a limitation in essence that the media is a means called a channel, because in essence the media has expanded and extended the human ability to feel, hear and see within a certain distance and time limit, now with the help of the media these limits are almost non-existent. And then Blacks and Horalsen argue, media is a communication channel or medium used to carry or convey a message, where the medium is a path or tool by which a message travels between communicators to communicants [12]. The existence of learning media as a tool in the learning process is a fact that cannot be denied. Teachers as messengers have a great interest in facilitating their duties in conveying messages or learning materials to students [13].

In designing or designing learning media, students' perceptions of learning media that have been used in schools are also needed. This perception is to see the process of understanding the material/information that occurs [8] [14] in these students. Perception is a cognitive process experienced by everyone in understanding information about their environment, either through sight, hearing, appreciation, feeling, and smell. Perception is part of the entire process that produces a response or response which after the stimulus is applied to humans [15]. The subprocesses are recognition, feeling, and reasoning. Perception and cognition required in all psychological activities. Taste and reason are not necessary part of every stimulus-response situation, even though most of the individual's conscious and independent responses to one stimulation, is considered to be influenced by reason or emotion or both [16] [17].

## 3. Methods

This Study Aims To Determine Students' Perceptions Of Learning Using Animation/Powton In Smp/Mts Based On Gender. Judging From The Data Collected, This Study Uses A Qualitative Approach Because This Study Wants To Describe The Reality On The Ground. Questionnaires Carry Out The Data Collection Method Through Data Collection From Primary And Secondary Sources. In This Study, The Primary Data Was The Result Of A Perception Survey Through A Questionnaire Conducted To Smp/Mts Students. At The Same Time, Secondary Information Is Obtained From A Literature Review Regarding Online Learning Systems And Virtual Classes. The Data Analysis Technique Uses Percentages. The Results Of Data Analysis Are Presented Descriptively In The Next Subchapter. The Percentage Formula Is Used To Find Out What Percentage The Number Of Each Category Of Student Perceptions About The Use Of Animation-Based Learning Media Is As Follows:

$$P = F/N \times 100\%$$

Information :

P : Percentage Number

F: Answer Frequency

N: Number Of Respondents

## 4. Results And Discussion

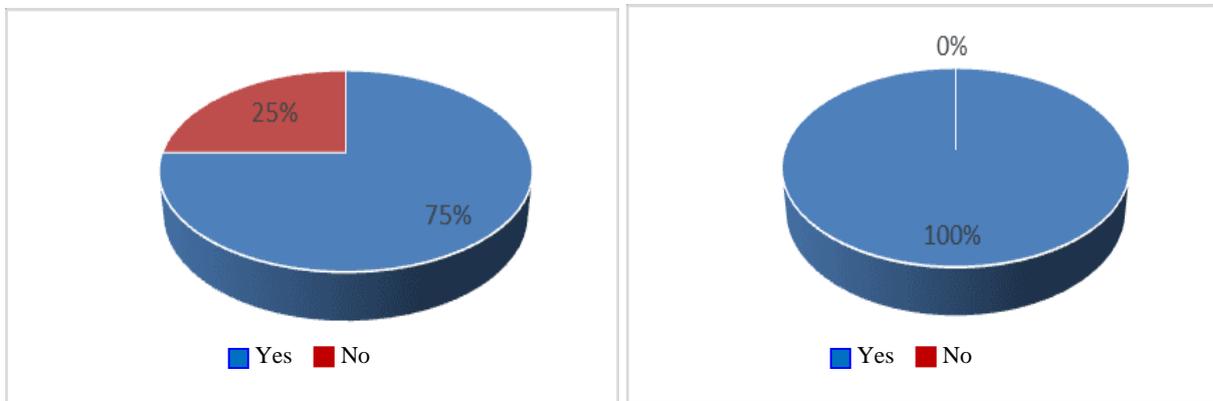
Students' Perceptions Of Mathematics Learning Using Powton Animation Media, The Researchers Gave A Student Response Questionnaire Filled Out By 36 Students, Consisting Of 16 Male Students And 20 Female Students. The Students' Perceptions Of Learning Mathematics Using Animated Media (Powton) Can Be Explained As Follows:

The Perception Of Students Based On Gender Towards Learning Mathematics Is Expressed By Statement Number 1, "Student Interest In Learning Mathematics". The Percentage Of Students' Perceptions Of Learning Mathematics Is Presented In Figure 1 Below.



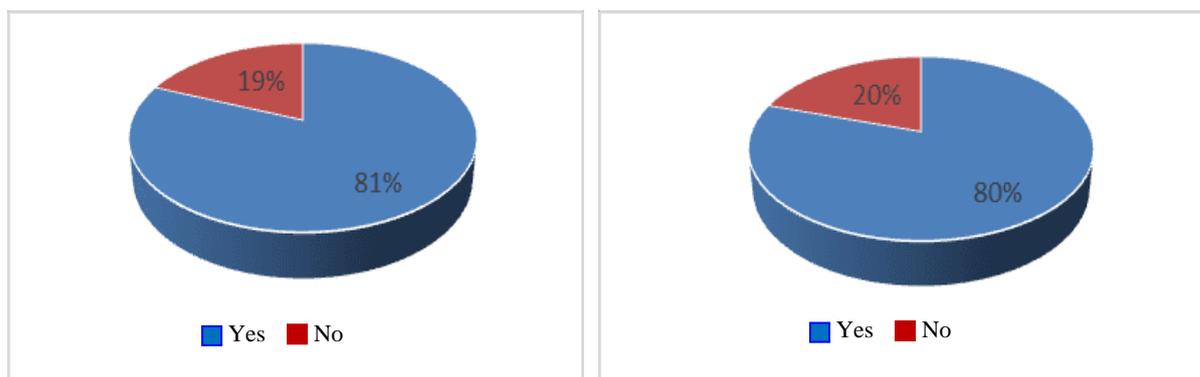
**Fig 1.** Percentage of students' perceptions of learning mathematics: a) male students and b) female students

The perception of students based on gender towards mathematics learning associated with daily life is expressed by statement number 2, namely "students' interest in learning mathematics associated with everyday life." the percentage of students' perceptions of learning mathematics associated with daily life is presented in Figure 2 below.



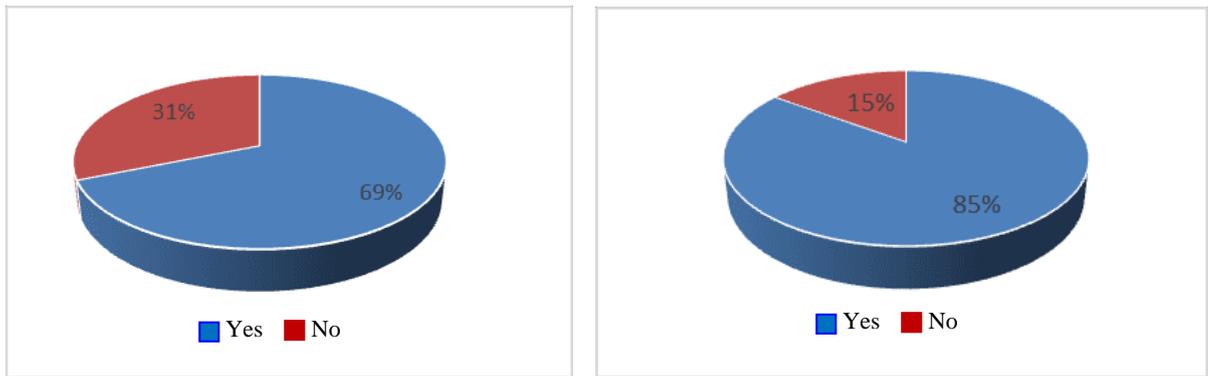
**Fig 2.** Percentage of students' perceptions of learning mathematics: a) male students and b) female students

The perception of students based on the gender on the difficulty of understanding mathematical material is expressed by the statement Number 3, namely "mathematics is a difficult subject to understand". The percentage of students' perceptions of the difficulty of understanding mathematical material is presented in Figure 3 below.



**Fig 3.** Percentage of students' perceptions of learning mathematics: a) male students and b) female students

Students' perceptions based on gender on the variation of methods applied in learning mathematics are expressed by the statement Number 4, namely "In conveying mathematics material, the teacher uses a variety of methods". The percentage of students' perceptions of the variety of methods applied in learning mathematics is presented in Figure 4 below.



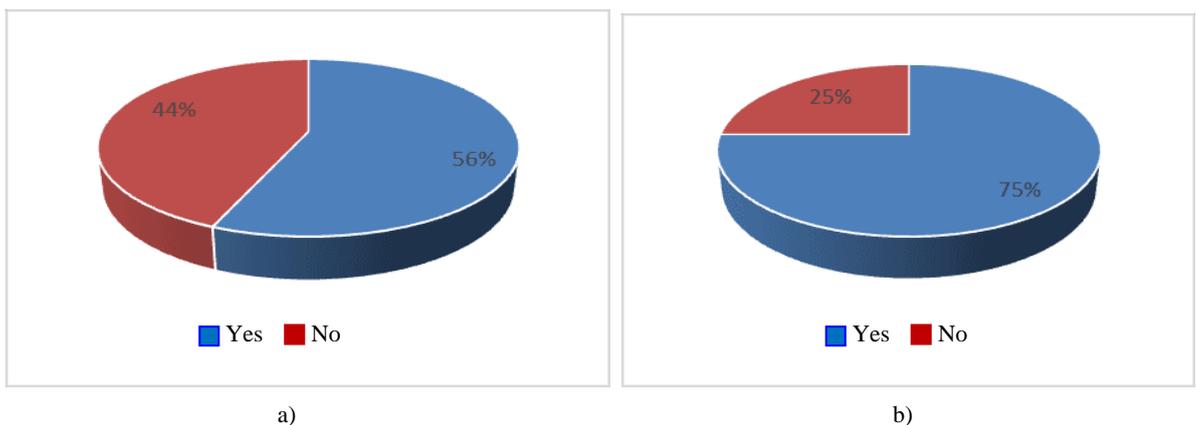
**Fig 4.** Percentage Graph of Perceptions about the variety of methods applied in learning mathematics: a) male students and b) female students

Student perceptions based on gender towards methods that are often applied in learning mathematics are expressed by statement Number 5, namely "Learning through notes given by the teacher on the blackboard even without application can make it easier for you to understand mathematical concepts". The percentage of students' perceptions of the methods that are often applied in learning mathematics is shown in Figure 5 below.



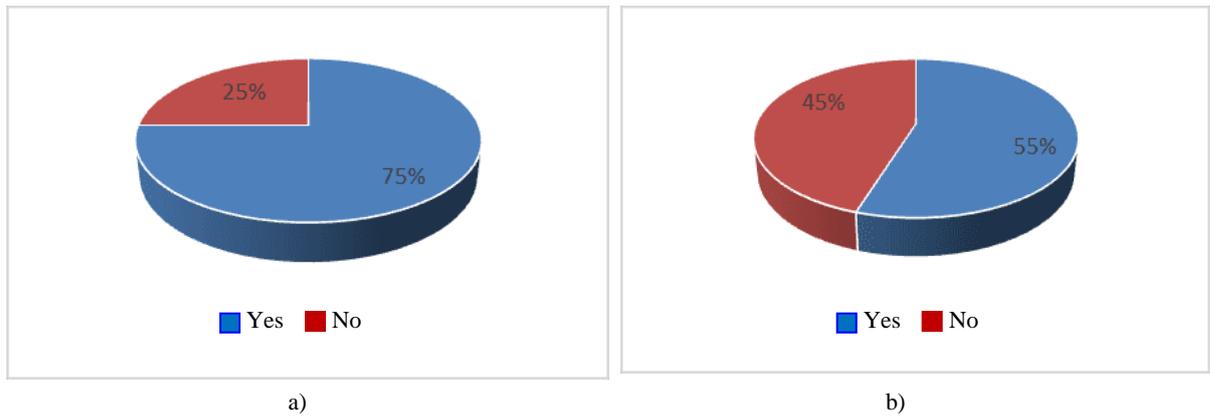
**Fig 5.** Percentage of students' perceptions of the method applied: a) male students and b) female students

Students' perceptions based on gender on the variation of methods with learning media applied in mathematics learning are expressed by the statement Number 6, namely "Does your teacher use special learning media to teach a mathematics material". The percentage of students' perceptions of the variety of methods with learning media applied in learning mathematics is presented in Figure 6 below.



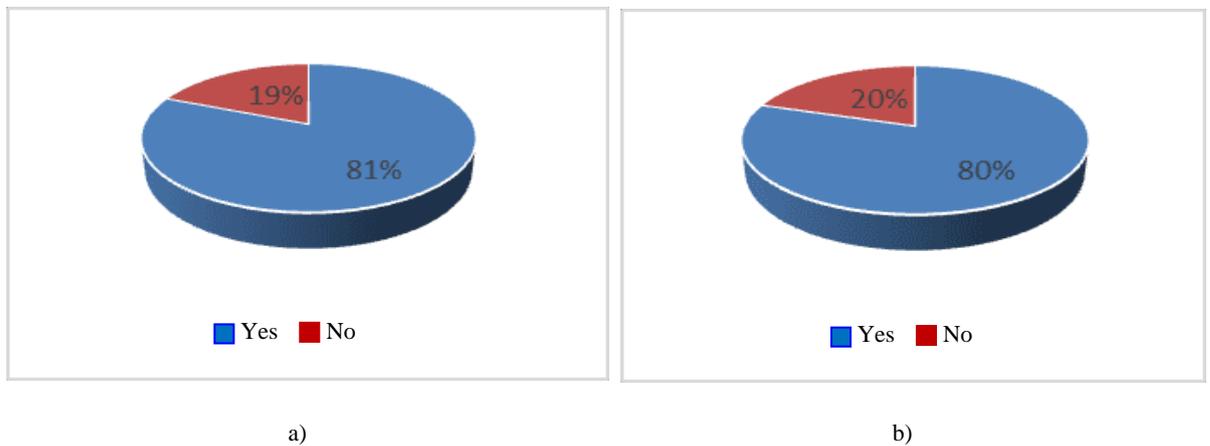
**Fig 6.** Percentage of students' perceptions of variations in methods with media in learning mathematics: a) male students and b) female students

The perception of students based on the gender on the use of blackboard media and the lecture method on understanding the concept of the material is revealed by the statement Number 7, namely "whiteboard media and lecture methods can help them understand mathematical concepts." The percentage of students' perceptions of learning mathematics associated with daily life is presented in Figure 7 below.



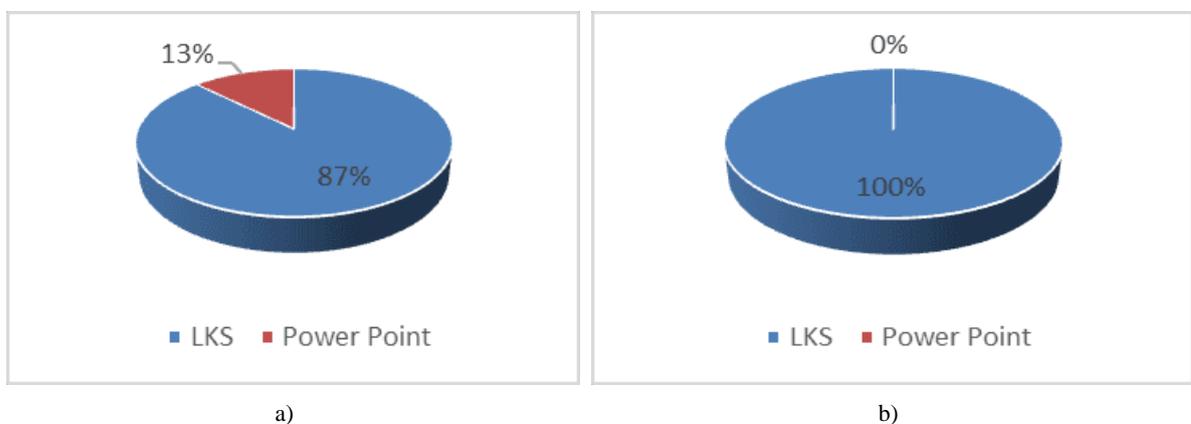
**Fig 7.** Percentage of students' perceptions of the effect of using blackboard media and the lecture method on understanding the concept of learning mathematics: a) male students and b) female students

Students' perceptions based on gender on the use of special media applied in mathematics learning are expressed by statement Number 8, namely "Learning through notes given by the teacher and assisted by learning media in the form of animated videos, can make it easier for you to understand mathematical concepts". The percentage of students' perceptions of learning through notes provided by the teacher and assisted by learning media in the form of animated videos can make it easier for you to understand the mathematical concepts presented in Figure 8 below.



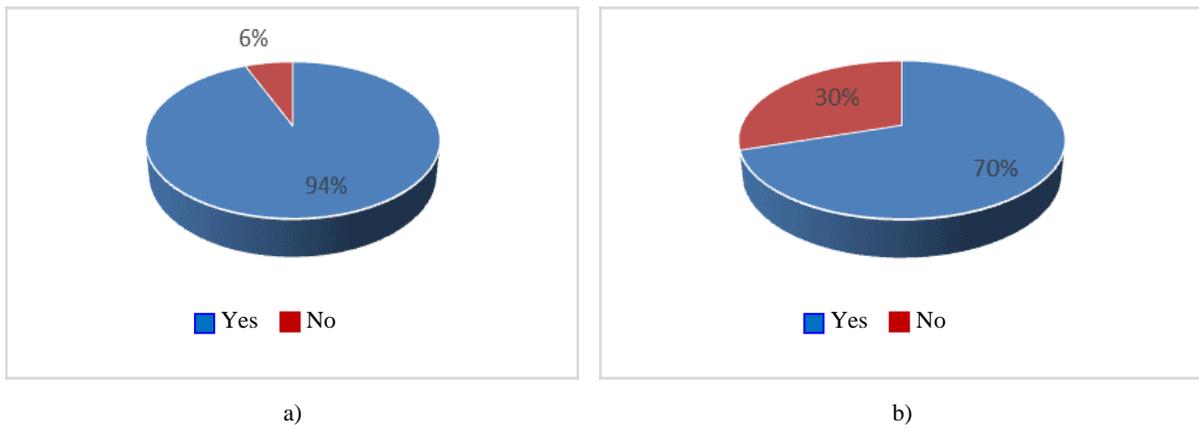
**Fig 8.** Percentage of students' perceptions of learning mathematics: a) male students and b) female students

Students' perceptions based on gender on the use of special media applied in learning mathematics are expressed by the statement Number 9, namely "the media that are often used in classroom learning". The percentage of students' perceptions of the media that are often used in classroom learning is presented in Figure 9 below.



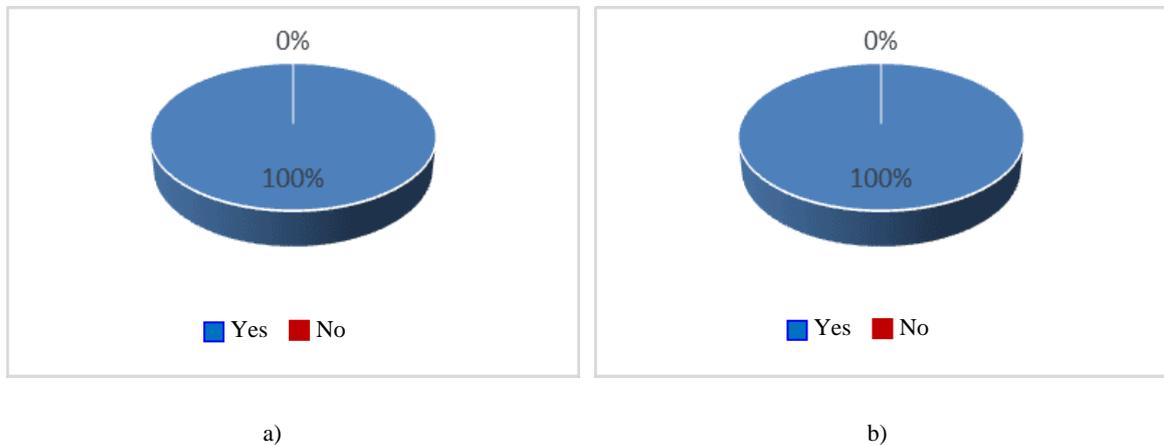
**Fig 9.** Percentage of students' perceptions of learning mathematics: a) male students and b) female students

The perception of students based on the gender on animated videos in understanding mathematical material is expressed by the statement Number 10, namely "whether the use of animated videos can help students understand". The percentage of students' perceptions of animated videos in understanding mathematical material is presented in Figure 10 below.



**Fig 10.** Percentage of students' perceptions of learning mathematics: a) male students and b) female students

The perception of students based on the gender on the need for Powton media in understanding mathematics learning is expressed by the statement Number 11, namely, "Do you need learning media that can be used to learn mathematics material more easily." The percentage of students' perceptions of the use of animated videos in understanding mathematical material is presented in Figure 11 below.



**Fig 11.** Percentage of students' perceptions of the need for Pwoton media in understanding mathematics learning  
a) male students and b) female students

Student perceptions based on the gender on the need for animated video learning media to make it easier to understand mathematical concepts are expressed by statement Number 12, namely "Do you agree if it is necessary to develop a learning media in the form of animated videos for the mathematics learning process so that the concept is easy to understand". The percentage of students' perceptions of learning media in animated videos for the mathematics learning process so that the concept is easy to understand is presented in Figure 12 below.



**Fig 12.** Percentage of students' perceptions of the need for animated video learning media in understanding the concept of:  
a) male students and b) female students

The study results show that female students are more interested in learning mathematics than male students. This statement follows Amir, who stated that few female students succeed in mathematical abilities [18]. Female students are more thorough, careful, and patient in solving mathematical problems to communicate mathematical ideas either with pictures, diagrams, or symbols and have a better representation of mathematical ideas than male students [19]. In addition, there is also a favorable perception of the use of

animation media in learning mathematics, which is very beneficial for male and female students [20]. Using animation media and powton male students become easier to understand the material being taught, compared to only using blackboard media. Furthermore, the lecture method, so that the use of animation media can improve student learning outcomes. Another benefit obtained by students is increasing students' imagination power when applying mathematical material in everyday life. The statement is in line with the research results [21], [22], which states that there is a significant effect between teaching aids on mathematical ability and mathematics learning outcomes. That statement is also supported by [23] opinion that the teaching and learning process with the help of the media enhances students' learning activities and with the help of the media will produce better learning processes and outcomes than without the help of the media. Presentation of exciting learning and involving students in fantasy and imitation situations (fictitious characters) is an underpinning in the development of animated video media. Animated videos that in it there is a fantasy describing various imitation situations so that students be interested [24].

## 5. Conclusion

Based on the results of research and discussion, it has been known that students' perceptions of learning mathematics using Powton media are perfect. Both male and female students have a positive perception of learning mathematics by using Powton-based learning media in SMP/MTs students get an average student answer with a percentage of 100% and fall into the "Very Good" category.

## Acknowledgement

We would like to thank all parties involved in this research. We would also like to thank the institute of research and community service, Unimal, for the opportunity given to the research team with the 2021 research fund under the Lecturer scheme from Universitas Malikussaleh.

## References

- [1] V. Sönmez, "Association of Cognitive, Affective, Psychomotor and Intuitive Domains in Education, Sönmez Model," *Univers. J. Educ. Res.*, vol. 5, no. 3, pp. 347–356, 2017, doi: 10.13189/ujer.2017.050307.
- [2] A. I. Anwar, A. Zulkifli, M. Syafar, and N. Jafar, "Effectiveness of counseling with cartoon animation audio-visual methods in increasing tooth brushing knowledge children ages 10–12 years," *Enfermería Clínica*, vol. 30, pp. 285–288, Mar. 2020, doi: 10.1016/J.ENFCLI.2019.07.104.
- [3] N. Nurhairunnisah and S. Sujarwo, "Bahan ajar interaktif untuk meningkatkan pemahaman konsep Matematika pada siswa SMA kelas X," *J. Inov. Teknol. Pendidik.*, vol. 5, no. 2, pp. 192–203, 2018, doi: 10.21831/jitp.v5i2.15320.
- [4] G. J. Hwang, S. Y. Wang, and C. L. Lai, "Effects of a social regulation-based online learning framework on students' learning achievements and behaviors in mathematics," *Comput. Educ.*, vol. 160, p. 104031, Jan. 2021, doi: 10.1016/J.COMPEDU.2020.104031.
- [5] T. Nurrita, "Pengembangan Media Pembelajaran Untuk Meningkatkan Hasil Belajar Siswa," *MISYKAT J. Ilmu-ilmu Al-Quran, Hadist, Syari'ah dan Tarb.*, vol. 3, no. 1, p. 171, 2018, doi: 10.33511/misykat.v3n1.171.
- [6] M. Yaumi, "Ragam Media Pembelajaran: Dari Pemanfaatan Media Sederhana ke Penggunaan Multi Media," *J. Chem. Inf. Model.*, vol. 53, no. 9, pp. 1689–1699, 2017.
- [7] T. Vagg, J. Y. Balta, A. Bolger, and M. Lone, "Multimedia in Education: What do the Students Think?," *Heal. Prof. Educ.*, vol. 6, no. 3, pp. 325–333, Sep. 2020, doi: 10.1016/J.HPE.2020.04.011.
- [8] S. Wahyuni, M. AR, and Susanna, "Persepsi Siswa terhadap Penggunaan Media Pembelajaran Fisika di SMA Negeri se-kota Banda Aceh," *J. Ilm. Mhs. Pendidik. Fis.*, vol. 2, no. 1, pp. 135–140, 2017.
- [9] D. prayitno, edy, "Pemanfaatan Teknologi Informasi Untuk Meningkatkan Kualitas Pembelajaran," *TECHSI - J. Tek. Inform.*
- [10] W. Abdul, "Pentingnya Media Pembelajaran dalam Meningkatkan Prestasi Belajar," *Istiqra*, vol. 5, no. 2, pp. 1–11, 2018.
- [11] N. A. Jogeza, F. A. Baloch, M. Jaffar, T. Shah, G. K. Khilji, and S. Bashir, "Teachers' attitudes towards social media (SM) use in online learning amid the COVID-19 pandemic: the effects of SM use by teachers and religious scholars during physical distancing," *Heliyon*, vol. 7, no. 4, p. e06781, Apr. 2021, doi: 10.1016/J.HELIYON.2021.E06781.
- [12] M. Miftah *et al.*, "Pembelajaran, Inovasi Model," *Edukatif J. Ilmu Pendidik.*, vol. 37, no. 1, pp. 27–35, 2018.
- [13] A. Muhson, "PENGEMBANGAN MEDIA PEMBELAJARAN BERBASIS TEKNOLOGI INFORMASI," *J. Pendidik. Akunt. Indones.*, 2010, doi: 10.21831/jpai.v8i2.949.
- [14] B. . D. Riyanti, H. Prabowo, and Ira Puspitawati, "Psikologi Umum I by B.P. Dwi Riyanti, Hendro Prabowo, Ira Puspitawati (z-lib.org).pdf." p. 218, 1996.
- [15] S. Levy and L. Goldfarb, "The perception of subset quantity and items in an environment with distractors in a population with mathematical learning difficulties," *Trends Neurosci. Educ.*, vol. 25, p. 100166, Dec. 2021, doi: 10.1016/J.TINE.2021.100166.
- [16] Asrori, *Psikologi Pendidikan Pendekatan Multidisipliner*, vol. 53, no. 9. 2019.
- [17] M. W. Choirul Umam, F. Hardaningrum, and R. Durrotun Nasihien, "Analysis Of Traffic Accident Area On The Road In Gresik District Based On Geographic Information System," *Int. J. Eng. Sci. Inf. Technol.*, vol. 1, no. 2, 2021, doi: 10.52088/ijesty.v1i2.52.
- [18] M. Matteucci and S. Mignani, "Investigating gender differences in mathematics by performance levels in the Italian school system," *Stud. Educ. Eval.*, vol. 70, p. 101022, Sep. 2021, doi: 10.1016/J.STUEDUC.2021.101022.
- [19] A. Rachmatullah, C. B. Mayhorn, and E. N. Wiebe, "The effects of prior experience and gender on middle school students' computer science learning and monitoring accuracy in the Use-Modify-Create progression," *Learn. Individ. Differ.*, vol. 86, p. 101983, Feb. 2021, doi: 10.1016/J.LINDIF.2021.101983.
- [20] A. Mukuka, O. Shumba, and H. M. Mulenga, "Students' experiences with remote learning during the COVID-19 school closure: implications for mathematics education," *Heliyon*, vol. 7, no. 7, p. e07523, Jul. 2021, doi: 10.1016/J.HELIYON.2021.E07523.
- [21] S. Berney and M. Bétrancourt, "Does animation enhance learning? A meta-analysis," *Comput. Educ.*, vol. 101, pp. 150–167, Oct. 2016, doi: 10.1016/J.COMPEDU.2016.06.005.
- [22] L. Lin and R. K. Atkinson, "Using animations and visual cueing to support learning of scientific concepts and processes," *Comput. Educ.*, vol. 56, no. 3, pp. 650–658, Apr. 2011, doi: 10.1016/J.COMPEDU.2010.10.007.
- [23] S. A. Widodo and Wahyudin, "Selection of learning media mathematics for Junior School Students," *Turkish Online J. Educ. Technol. - TOJET*, vol. 17, no. 1, 2018.
- [24] N. M. Suki and N. M. Suki, "Determining students' behavioural intention to use animation and storytelling applying the UTAUT model: The moderating roles of gender and experience level," *Int. J. Manag. Educ.*, vol. 15, no. 3, pp. 528–538, Nov. 2017, doi: 10.1016/J.IJME.2017.10.002.