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Powtoon based Animated Videos in Science Lessons to Improve Student Learning Outcomes in Islamic Elementery School

Video Animasi Berbasis Powtoon pada Pelajaran IPA untuk Meningkatkan Hasil Belajar Siswa di Madrasah Ibtidaiyah

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Abstract
This research is research and development. The ADDIE development model consists of 5 stages, namely: (1) analyze, (2) design, (3) development, (4) implementation, (5) evaluation. The research was carried out in Min 1 Medan City. The research subjects were 20 class IV students, consisting of 11 female students and 9 male students. The object in the research ispowtoon based animated video. The data collection techniques used were observation, tests and questionnaires. The data analysis techniques used are analysis of the feasibility of Powtoon based animated videos and analysis of the effectiveness of Powtoon based animation. Based on the results of material validation with a percentage of 91.68% it is categorized as feasible. Meanwhile, the media validation results were 93.49% with a decent percentage.The results of the pretest and posttest trials that were carried out using Powtoon based animated videos showed an increase in student learning outcomes. This is known from The results of the pretest were 17 students who did not complete and 3 students who completed with a percentage of 85%. Meanwhile, the results of the posttest were not as many as 1 student and 19 students who completed it with a percentage of 82%.
Keywords: *animated videos; powtoon; science lessons; learning outcomes*

Abstrak
Penelitian ini merupakan penelitian dan pengembangan. Model pengembangan ADDIE yang terdiri dari 5 tahap yaitu: (1) analyze, (2) design, (3) development, (4) implementation, (5) evaluation. Penelitian dilaksanakan di Min 1 Kota Medan. Subjek penelitian yaitu siswa kelas IV yang berjumlah 20 siswa, terdiri dari 11 siswa perempuan dan 9 siswa laki-laki. Objek dalam penelitian yaitu video animasi berbasis powtoon. Teknik pengumpulan data yang digunakan yaitu observasi, tes, dan angket. Teknik analisis data yang digunakan yaitu analisis kelayakan video animasi berbasis powtoon dan analisis keefektifan animasi berbasisi powtoon. Berdasarkan hasil validasi materi dengan persentase 91,68% dikategorikan layak. Sedangkan, hasil validasi media dengan persentase 93,49% dengan persentase layak. Hasil ujicoba pretest dan ujicoba postest yang telah dilakukan dengan menggunakan video animasi berbasis powtoon adanya peningkatkan hasil belajar siswa. Hal ini diketahui dari hasil ujicoba pretest siswa yang tidak tuntas sebanyak 17 orang dan siswa yang tuntas sebanyak 3 orang dengan

persentase 85%. Sedangkan, hasil ujicoba postest siswa yang tidak sebanyak 1 orang dan siswa yang tuntas sebanyak 19 orang dengan persentase 82%.
Kata kunci: video animasi; powtoon; pelajaran IPA; hasil belajar

Introduction

Nowadays technology has developed rapidly. This also has an impact on the education sector. This is because the education sector has used technology to support the learning process in the classroom. This is in line with Asnawati (2023) who said that in the current digital era, the use of technology and digital media has become an integral part of the learning process.

By using technology as a learning medium to support the learning process, the use of learning media can make students interested in participating in learning and make it easier for teachers to provide learning material. This is in line with Salsabila et al (2022) who say that the use of media is very important for teachers to support the learning process because it can increase students' interest in learning so that the level of understanding can increase.

Based on the results of observations carried out by researchers on August 16 2023 in Min 1 Medan City, it is known that the learning process is less effective, students are less interested in participating in learning, students are less able to understand what is explained by the teacher, the teacher only uses learning media in the form of pictures. pasted on the blackboard. This problem has an impact on low student learning outcomes.

One learning media that can help teachers in the learning process is the use of animated videos. Animated video is the movement of one frame after another which differ from each other within a predetermined time duration, thus creating the impression of movement and there is also sound that supports the movement of the image, for example speech or dialogue and other sounds (Galuh et al, 2023). This is supported by research by Ginting & Tamba (2023) saying Animated video is a learning media that simultaneously displays video and audio which contains pieces of images put together and made into moving images and also added with supporting sound which makes this media able to attract students' interest and help in conveying information.

Animated videos have several advantages compared to using regular documentaries. Animated video media is more varied and popular with a wider audience. In learning that uses animated video learning media, it will present interesting

material so that students will be more enthusiastic and pay attention to the lesson well and easily understand the material being studied (Widyahabsari et al., 2023).

One application that can be used to make animated videos is powtoo. Powtoon is an online facility for creating presentations that has very interesting animation features including handwritten animation, cartoon animation, and live transition effects, as well as very easy timeline settings (Nuriyanti et al., 2022). Then, Nisaurarahman et al (2023) said that powtoon is a learning media creation application that can create presentations in the form of animated videos.

The benefits of powtoon in learning are: (a) it is easy to use the application and does not require complicated steps, (b) it is designed to be as simple as possible without compromising on quality for the user, (c) the presentation in powtoon media is in the form of audio-visual media which can be adjusted to suit your needs. users anywhere and anytime, (d) presenting interactive material, and the videos displayed do not take up a long time so that students will not get bored while following the lesson (Rahmawati, 2022).

According to Massofia & Yolanda (2023), the advantages of powtoon learning media are: (a) it covers all aspects of the senses, (b) its use is practical, (c) it is collaborative, (d) it can be used in large groups or individually, (e) it is more varied, (f) can provide feedback, and (g) motivate students. Meanwhile, the shortcomings of powtoon learning media are: (a) dependence on the availability of technological support, (b) it must be adapted to existing systems and conditions, (c) reduces creativity and invasion from other types of learning media, (d) requires adequate human resource support professional to operate it.

By using powerpoint based animated videos, it is hoped that student learning outcomes will improve. Learning outcomes are the results that students have achieved after participating in learning activities (Rahman, 2021). This is in line with what Nainggolan et al (2022) said learning outcomes are changes that result in humans changing their attitudes and behavior towards the student learning process in accordance with the learning objectives.

From the description above, the researcher wants to make research entitled "Development of Powtoon Based Animation Videos in Science Lessons to Improve Student Learning Outcomes at MIN". It is hoped that this research will be a solution for

teachers in supporting the learning process in the classroom, so that the learning process can run effectively and efficiently.

Research methods

This research is research and development. The definition of research and development can be interpreted as a process for developing new products or improving existing products, where the product can be accounted for (Widodo & Hanifah, 2020). The stages in the ADDIE development model consist of 5 stages, namely: (1) analyze, (2) design, (3) development, (4) implementation, (5) evaluation (Carolin et al, 2020). This research was carried out in Min 1 Medan City. The research subjects were 20 class IV students, consisting of 11 female students and 9 male students. The object in the research ispowtoon based animated video. The data collection techniques used were observation, tests and questionnaires. The data analysis techniques used are analysis of the feasibility of powtoon based animated videos and analysis of the effectiveness of powtoon based animation.

Table 1. Likert Scale (Kesumawati et al, 2022)

No	Answer	Score
1	Very good	4
2	Good	3
3	Enough	2
4	Not good	1

To measure the feasibility of a powtoon based animated video, you can use the following formula:

$Y = x\ 100\% \frac{\Sigma x}{\Sigma xi}$ Maulana et al (2023)

Table 2. Eligibility Criteria for Animation Videos (Wardani et al., 2023)

No	Score	Classification
1	90% X < 100%	Very Worth It
2	80% X < 90%	Worthy
3	70% X < 80%	Decent Enough
4	60% X < 70%	Not feasible
5	0% X < 60%	Totally Not Worth It

The formula for calculating student learning outcomes is as follows:

$P = \frac{f}{N} \times 100\%$ (Rahayuningsih & Eliyarti, 2019)

Information :

P :Percentage
f :Frequency
N :Total Activity Number

Results and Discussion

The results of research conducted in Min 1 Medan City resulted in a powtoon based animation video. The research uses the ADDIE development model which consists of 5 stages, namely: (1) analyze, (2) design, (3) development, (4) implementation, (5) evaluation. The results of research using the ADDIE development model are as follows:

Analyze

Analyze is the first stage in developing a powerpoint based animated video. At this stage, the researcher carried out several analyzes including initial analysis, analysis of student characteristics, analysis of learning objectives. From this analysis, researchers will carry out research by developing a product, namely a powtoon based animated video.

Design

In the stages of this research, the researcher has designed a powtoon based animated video. Powtooon based animated videos will be used in science lessons with the aim of making it easier for students to understand the material in science lessons.

Development

At this stage, the researcher has finished designing a powerpoint based animated video. After completing the design, the researcher will validate the powtoon based animated video with two experts, namely a material expert and a media expert. Validation aims to determine the feasibility of a powerpoint based animated video before being tested on students. Validation was carried out in accordance with suggestions and input from two experts. After receiving suggestions and input, the researchers revised the powtoon based animated video. After revising, the researchers

revalidated the powtoon based animated video with two experts. The validation results can be seen in the table below:

Table 3. Powtoon Based Animation Video Validation Results

No	Assessment Aspects	Percentage (%)	Eligibility Criteria
1	Materials Expert	91.68%	Very worthy
2	Media Expert	93.49%	Very worthy

Implementation

After completing the development stage, researchers will proceed to the implementation stage. At this stage the researcher will conduct trials on fourth grade students in Min 1 Medan City. The aim of this trial was to determine the improvement in student learning outcomes by using powtoon based animated videos. Testing was carried out in two stages, namely pretest testing and posttest testing. This trial was carried out by class IV students in Min 1 Medan City. The results of the pretest and posttest trials can be seen in the table below:

Table 4. Recapitulation of Pretest and Posttest Test Results

No	Student's	Pretest	Criteria	Posttest	Criteria
1	01	20	Not Completed	70	Complete
2	02	50	Not Completed	90	Complete
3	03	60	Not Completed	100	Complete
4	04	30	Not Completed	70	Complete
5	05	40	Not Completed	80	Complete
6	06	70	Complete	90	Complete
7	07	50	Not Completed	80	Complete
8	08	40	Not Completed	80	Complete
9	09	80	Complete	90	Complete
10	010	50	Not Completed	80	Complete
11	011	50	Not Completed	90	Complete
12	012	60	Not Completed	80	Complete
13	013	40	Not Completed	60	Not Completed
14	014	20	Not Completed	90	Complete
15	015	40	Not Completed	80	Complete
16	016	70	Complete	90	Complete
17	017	60	Not Completed	90	Complete
18	018	50	Not Completed	90	Complete
19	019	20	Not Completed	70	Complete
20	020	60	Not Completed	80	Complete
Amount		**960**		**1650**	
Average		**58**		**82**	
Percentage		**58%**		**82%**	

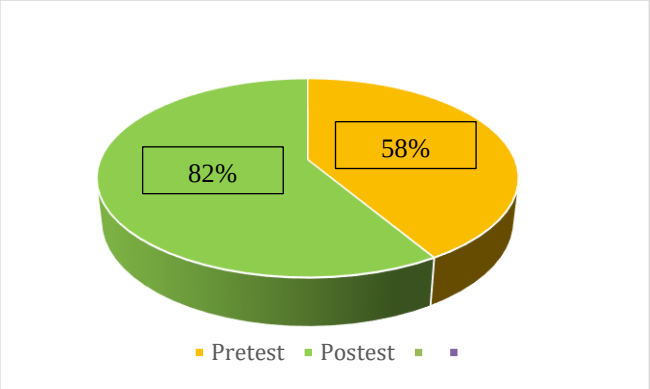

Figure 1. Results of pretest and posttest trials

Based on the results of pretest and posttest trials, it is known that there is an increase in student learning outcomes after using powtoon based animated videos. The results of the pretest trial were 17 students who did not complete and 3 students who completed it with a percentage of 85%, while the results of the posttest trial were 1 student who did not complete it and 19 students who completed it with a percentage of 82%.

Evaluation

Evaluation is the final stage at this stage. Evaluation was carried out to find out justifications and errors that occurred in the powtoon based animated video at each stage. Evaluation is carried out at each stage of the PowerPoint-based animation video to improve student learning outcomes in science lessons so that the product developed is said to be feasible and effective.

Discussion

The discussion in this research provides a description of the development of powerpoint based animation videos in science lessons, which have been validated by material experts and media experts, and have also been tested on students through two stages, namely pretest and posttest.

Based on the results of material validation with a percentage of 91.68% it is categorized as feasible. This is supported by research by Lubis et al (2023) which states that the material validation results with a percentage of 87.79% are in the very feasible

category. Novianti & Lubis (2023) said that the material validation results with a percentage of 97% were in the very feasible category. Parinduri et al (2022) said that the material validation results with a percentage of 88.06% were in the very feasible category. Meanwhile, the media validation results were 93.49% with a decent percentage. This is supported by research by Hulqi & Arifin (2022) which states that the results validation media experts amounting to 83.3% is in the appropriate category. Lubis et al (2023) said that the results validation media experts amount 93.80% included in the eligible category. Nurfitriana et al (2022) said that the results validation media experts amount 93% included in the eligible category.

Based on the results of the pretest and posttest trials which were carried out using powtoon based animated videos, there was an increase in student learning outcomes. This is known from the results of the pretest were 17 students who did not complete and 3 students who completed with a percentage of 85%. Meanwhile, the results of the posttest were not as many as 1 student and 19 students who completed it with a percentage of 82%. This is supported by research by Maulidiyah (2022) which states that there was an increase in the cognitive learning outcomes of class II students, from an average pretest score of 69.67 to an average posttest score of 82.33, which is a moderate qualifying score. Damaiyanti et al (2023) said that the pretest results were 60%, increasing at the posttest by 81.53%.

Based on the results and discussion of this research, it can be concluded that the powtoon based animation video developed is feasible and effective for use by fourth grade students.at Min 1 Medan City.

Conclusion

Research develops powtoon based animated video science lessons to improve student learning outcomes. The stages in the ADDIE development model consist of 5 stages, namely: (1) analyze, (2) design, (3) development, (4) implementation, (5) evaluation. Based on the results of material validation with a percentage of 91.68% it is categorized as feasible. Meanwhile, the media validation results were 93.49% with a decent percentage. The results of the pretest and posttest trials that were carried out using powtoon based animated videos showed an increase in student learning outcomes. This is known from the results of the pretest were 17 students who did not

complete and 3 students who completed with a percentage of 85%. Meanwhile, the results of the posttest were not as many as 1 student and 19 students who completed it with a percentage of 82%. From the description above, it can be concluded that the developed powtoon based animation video is feasible and effective for use by fourth grade students at Min 1 Medan City.

Reference

Damaiyanti, A., Andriani, D., Bunayya, HW, & Ritonga, SF (2023). Development of Animation Videos with Object Movement Materials to Improve Creative Thinking Abilities. *El-Mujtama: Journal of Community Service*, *4*(1), 161-170.

Galuh, BP, Elisa, D., & Riana, R. (2023). The Influence Of Animation Based Learning Videos On Early Children's Learning Interest. *Pearl Education E-Journal*, *7*(2).

Ginting, YAB, & Tamba, R. (2023). Development of Animation Video Learning Media Based on the Inshot Application in Theme 5 Class II SDN 040556 Juhar. *Educational Science Research Journal*, *2*(2), 272-287.

Hulqi, RH, & Arifin, MBUB (2022). Development of Animation Videos on Class VI Solar System Material to Improve Learning Outcomes at Mi Muhammadiyah 2. Kedung Banteng. *Didactic: Journal of Education and Science*, *22*(2), 237-252.

Kesumawati, D., Habib, M., Lubis, RR, & Novianti, Y. (2022). Development of Digital Based Flash Card Media on Thematic Learning in Ibtidaiyah Madrasah. *Pedagogical Journal of Islamic Elementary School*, *5*(1), 83-94.

Lubis, RR, Rambe, N., Azhar, PC, Sugma, AR, & Franklin, TND (2023). Development of Digital Based Smart Card Learning Media to Improve the Learning Outcomes of Madrasah Ibtidaiyah Students. *MUDARRISA: Journal of Islamic Education Studies*, *15*(1), 1-24.

Lubis, RR, Dwiningrum, SIA, & Zubaidah, E. (2023). Development Powtoon Animation Video in Indonesian Language Learning to Improve Student Learning Outcomes Elementary Schools. *Journal of Computer Science, Information Technology and Telecommunication Engineering*, *4*(2), 427-433.

Massofia, F.D., & Yolanda, R. (2023, August). Powtoon as an Interactive Media for Learning Arabic in the Era of Society 5.0. In *Proceedings of International Conference on Islamic Civilization and Humanities (ICONITIES)* (Vol. 1, No. 1, pp. 238-245).

Maulidiyah, C. (2022). Development of Plotagon and Kinemaster Based Animation Videos to Improve Cognitive Learning Outcomes of Class II Students at SD Islam Lukman Hakim Pakisaji Malang.*Journal of Basic Education*, *6*(1), 76-85.

Maulana, A., Fatmawati, RA, & Nurdiana, R. (2023). Tabak Learning Media based on Ethnomathematics on Flat Building Material for 4th grade elementary school students. *Education Journal*,*1*(1), 80-92.

Nainggolan, DH, Sidabalok, NE, & Aritonang, E. (2022). The Influence of Study Habits on Mathematics Learning Results. *Elektriese: Journal of Electrical Science and Technology*, *12*(01), 1-6.

Nisaurrahman, A., Sukmanasa, E., & Novita, L. (2023). Developing a Learning Video Using Powtoon on Theme 9 The Richness of My Country Subtheme 3 Learning 3. *Didactics: PGSD STKIP Subang Scientific Journal*, *9*(04), 1199-1210.

Novianti, Y., & Lubis, RR (2023). Development Of Audiovisual Based E-Modules In Improving The Learning Independence Of Primary School Students In Stabat District. *Genta Mulia Journal*, *14*(1).

Nurfitriana, A., Enawaty, E., Harun, AI, Sahputra, R., & Ulfah, M. (2022). Development of Animation Video Media on Atomic Model Development Material.*Educative: Journal of Educational Sciences*,*4*(2), 2434-2453.

Nuriyanti, L., Prayitno, S., Tyaningsih, RY, & Bachelor, K. (2022). Development of PowToon-Based Mathematics Learning Media on Statistics Material. *Educational Professional Scientific Journal*, *7*(3b), 1462-1471.

Parinduri, WM, Lubis, RR, Rambe, TR, & Rambe, N. (2022). Development Of Flipbook Based Smart Card Learning Media In Science Learning To Improve Student Learning Motivation Class III Elementary School. *School Education Journal PGSD FIP Unimed*, *12*(3).

Rahayu, J., & Eliyarti, E. (2019). Application of Cassette Recordings as an Alternative Media to Improve Learning Outcomes in Environmental Chemistry Material with the Subject of Environmental Pollution for Class XI SMA N. 14 Padang. *JEDCHEM (Journal of Education and Chemistry)*, *1*(1), 36-43.

Rahmah, R., Mansur, H., & Dalu, ZCA (2023). Development Of Grapchic Motion Animation Videos Using A PBL Approach To Improve Students' Learning Outcomes In Class IV SD Science Subjects. *J-INSTECH*, *5*(1), 09-17.

Rahman, S. (2022, January). The importance of learning motivation in improving learning outcomes. In*Proceedings of the National Seminar on Basic Education*.

Rahmawati, A. (2022). Advantages and Disadvantages of Powtoon as a Learning Media.*Lentera: Educational Scientific Journal*,*17*(1), 1-8.

Salsabila, SM, Dewi, R., & Sakdiah, H. (2023). Development Of Powtoon Based Animated Video Learning Media On Light Motion Material For Class VIII SMP/MTS. *Relativity: Physics Learning Innovation Research Journal*, *5*(2).

Wardani, IK, Mujiwati, ES, & Putri, KE (2023). Development Of Interactive Media Based On Adobe Flash CS6 Material On Networks Of Beam And Cubes For Class 5 Primary School Students. *Pendas: Scientific Journal of Basic Education*, *8*(2), 5807-5816.

Widyahabsari, D., Aka, KA, & Zaman, WI (2023, August). Animation Video Media Building Material Space. In *Proceedings of SEMDIKJAR (National Seminar on Education and Learning)* (Vol. 6, pp. 587-594).

Yuyun Asnawati, S. (2023). Development Of Animated Video Media Based On The Canva Application To Increase Student Learning Motivation. *Journal of Islamic Education,9*(1), 64-72.