

Interactive Powerpoint Learning Media on Science Content for Fifth Grade Elementary School

I Made Tangkas Arya Wirawan^{1*}, I Ketut Gading², Gede Wira Bayu³ 

^{1,2,3} Pendidikan Guru Sekolah Dasar, Universitas Pendidikan Ganesha, Singaraja, Indonesia

ARTICLE INFO

Article history:

Received March 10, 2022

Accepted June 25, 2022

Available online July 25, 2022

Kata Kunci:

Powerpoint Interaktif, Hasil Belajar, Muatan IPA

Keywords:

Interactive Powerpoint, Learning Outcomes, Science Content



This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.

Copyright © 2022 by Author.

Published by Universitas Pendidikan Ganesha.

ABSTRAK

Kurangnya penggunaan media pembelajaran yang menarik berdampak pada kualitas hasil belajar siswa. Penelitian ini bertujuan untuk menghasilkan rancang bangun, menganalisis kelayakan, kepraktisan, dan efektivitas media pembelajaran powerpoint interaktif terhadap hasil belajar siswa pada muatan IPA kelas V Sekolah Dasar. Pengembangan media pembelajaran powerpoint interaktif menggunakan model ADDIE (Analyze, Design, Development, Implementation, Evaluation). Subjek uji coba penelitian ini adalah 11 siswa kelas V Sekolah Dasar. Metode pengumpulan data yang digunakan adalah observasi, wawancara, rating scale, dan test. Analisis data yang digunakan adalah analisis kebutuhan, analisis validitas instrumen, analisis validitas isi, analisis kepraktisan, dan analisis efektifitas. Uji kelayakan dilakukan oleh 2 ahli materi dan 2 ahli media. Ahli materi mendapatkan skor 0,93 (validitas tinggi) dan ahli media mendapatkan skor sebesar 0,89 (validitas tinggi). Untuk uji kepraktisan memperoleh skor 4,0 (sangat baik). Uji efektivitas menggunakan rumus uji t-test sampel berkorelasi didapatkan hasil bahwa besar signifikan (2-tailed) sebesar 0,000 ($p < 0,05$). Hasil ini menunjukkan bahwa media pembelajaran powerpoint interaktif efektif dapat meningkatkan hasil belajar siswa khususnya pada muatan IPA Kelas V Sekolah Dasar.

ABSTRACT

The absence of engaging learning resources impacts the effectiveness of student learning outcomes. This review aims to create a design and examine PowerPoint's viability, applicability, and efficacy for student learning outcomes in science subjects for fifth-grade Elementary School. Use the ADDIE Model for interactive learning ppt (Analyze, Design, Development, Implementation, Evaluation). The subjects of this research investigation were 11 grade 5 primary school children. Observation, interviews, rating scales, and tests are all employed as data collection techniques. The data analysis types employed are the evaluation process, instrument validity analysis, content validity analysis, practicality analysis, and effectiveness analysis. Two material specialists and two media experts conducted the feasibility test. Material experts earn a score of 0.93 (high validity), and media experts and media professionals receive a 0.89 score (high validity). For the practicality test, it got a score of 4.0 (very good). The effectiveness test using the correlated sample t-test test formula showed that the significant (2-tailed) was 0.000 ($p < 0.05$). Learning media *PowerPoint* can effectively improve student learning outcomes, especially in the science content of Grade V Elementary School.

1. INTRODUCTION

Learning outcomes are related to learning activities because learning activities result from the interaction process, learning process, and learning evaluation carried out by teachers and students through learning activities (Abbas et al., 2020; Hapsari & Zulherman, 2021). Student learning outcomes are marked with a value scale in the form of letters, symbols, and numbers (Agusti & Aslam, 2022; Audie, 2019; Hutapea, 2019). Learning outcomes are used to evaluate how deep the knowledge gained by students is and what experiences have been obtained after learning (R. Andriani, 2019; Lia Novita, 2019). Values are not the only form of individual learning outcomes; the attitudes and skills shown by individuals or groups are also the results of student learning (Harefa et al., 2020; Lina Novita & Sundari, 2020). Therefore, learning outcomes are assessed from 3 domains: affective, cognitive, and psychomotor. Cognitive based on the

knowledge possessed by students, affective properties shown during learning activities, and psychomotor skills are mastered by students. In addition, student learning outcomes come not only from themselves but can also be influenced by the surrounding environment, including the school environment, learning motivation, and learning media (Martina, 2019; Syachtiyani & Trisnawati, 2021).

However, due to the pandemic, the current reality has caused online student learning outcomes to decline. It is caused by several factors such as the absence of optimal tutoring from the teacher, students are not motivated to learn due to the absence of learning media that support learning from home, and students are feeling bored or bored during learning from home (Masturah et al., 2018; Suliani & Ahmad, 2021). It is generally because the learning process does not run effectively due to the lack of learning media that can support online learning, which affects the learning outcomes obtained by students (Amarulloh et al., 2019; Rejeki et al., 2020). Other problems that arise are that students feel bored and have difficulty understanding learning materials, the media used are only textbooks/visual media, and there is no novelty in using learning media that follows other learning styles (Asriyanti & Purwati, 2020; Ponza et al., 2018). Student learning outcomes during the learning process are decreasing day by day. It is caused by several factors, such as students' lack of interest in participating in learning, the learning media used do not vary and not following their learning styles, and learning tends to be boring/monotonous.

Based on observations and interviews in elementary schools, it was found that student learning outcomes, especially in fifth grade in science learning, were still low and below the Minimum Completeness Criteria set by the school. The minimum completeness criteria set by the school, especially in science content, is 76, but most students score below the minimum completeness criteria specified. It is caused by several factors, such as students not being motivated to participate in learning because the learning media used are not following their learning styles, teachers only deliver learning using the lecture method, the absence of appropriate and varied learning media, lack of active interaction between students and students and teachers and students, limited learning media available in schools, and during the learning process the teacher only uses theme books in the learning process. This situation causes teacher-centered learning, making the learning atmosphere monotonous and less interesting. As a result, students' motivation and interest in learning are reduced so that the learning outcomes obtained by students do not meet the predetermined Minimum Completeness Criteria. This situation needs to be considered by teachers, especially in fifth grade, to create changes in learning activities to increase student enthusiasm for learning and the learning outcomes obtained by students are optimal. Innovation is needed to increase the expected learning outcomes and improve learning, especially in developing learning media that can improve student learning outcomes.

The solution to overcome these problems is to use learning media. Learning media is one of the important influences in achieving learning outcomes. Using appropriate learning media can help increase students' motivation to learn so that it affects the learning outcomes of these students (Kusuma & Hamidah, 2020; Soimah, 2018). Therefore, it is necessary to have various learning media and the development of learning media following the era of development. The development of learning media today is inseparable from the application of technology because the use of technology can help vary learning and be more effective, efficient, and interesting (Kurniawati, 2019; Yuliawati et al., 2020). Coupled with online learning, technology-based learning media is increasingly needed to reach students online effectively. One of the technologies commonly used as learning media is PowerPoint.

Powerpoint is a medium that is easy to use and easy to vary the content and themes in it. PowerPoint can support independent learning like online learning, can easily vary into visual and audiovisual learning media, and can be used in various learning models (Muthoharoh, 2019; Zain & Pratiwi, 2021). PowerPoint can be included with video, text, images, or sound so that PowerPoint can be created into interactive learning media (León & Martínez, 2021; Setiawan et al., 2022). PowerPoint is very easy with various supporting features so that it does not burden the teacher to learn how to use it first (Ayu & Qohar, 2019; Baker et al., 2018; Gaikwad & Tankhiwale, 2014). Interactive PowerPoint can be used as a learning medium to attract students' interest and attention (Dewi & Manuaba, 2021; Zain & Pratiwi, 2021). Interactive Powerpoint is a simple, easy, complete learning media that can be used anytime and anywhere, so it is very suitable for interactive learning (Mahesti & Koeswanti, 2021; Nurrita, 2018). Interactive PowerPoint learning media combines text, animation, audio, video, educational games, evaluation, and conclusions to improve student learning outcomes (Ayu & Qohar, 2019; Prayitno & Mardianto, 2020). The interactive PowerPoint learning media presents teaching material through instructions and narration with an interactive system and a systematic response. In addition, interactive PowerPoint learning media can be used for students with different learning styles (visual, auditory, and kinesthetic). Interactive PowerPoint learning media is a multisensory-oriented learning media / that uses the sense of capture in learning, such as the sense of sight, the sense of hearing, and the sense of touch (Iswanto et al., 2018; Mudasih & Subroto, 2019). It can be seen from the components in interactive PowerPoint media, such as material packaged

with text, animation, and dubbing, learning videos, and educational games that the students apply (Fatmawati et al., 2021; Purnasari & Sadewo, 2021).

Several studies have shown that interactive powerpoints have special characteristics that are more effective in design to suit the needs of students in the learning process (Iga Raspati & Maria Zulfiati, 2020; Zahra et al., 2021). These characteristics have proven successful in demonstrating the advantages of interactive PowerPoint learning media. Interactive PowerPoint learning media is suitable for learning, and students positively respond to Interactive Powerpoint Media in the learning process (M. R. Andriani & -, 2016; Dewi & Manuaba, 2021). The development of creative and innovative learning media can be passed by utilizing technology, one of which is interactive powerpoint-based learning media that is practically used (Ayu & Qohar, 2019; Kalifah & Prastowo, 2021). There are many types of research on developing interactive PowerPoint learning media, but no one has studied interactive PowerPoint media for ecosystem materials. Learning media is needed to generate student learning motivation and make it easier for students to understand the learning material presented so that student learning outcomes can be optimal. Interactive Powerpoint learning media is a learning tool with methods, materials, and evaluations designed systematically and attractively to improve student learning outcomes. Interactive Powerpoint Learning Media leaves a positive impression on students during the learning process, creates a pleasant learning atmosphere, and can increase student enthusiasm and learning outcomes. Science learning content is included in Thematic subjects in Elementary School, for Ecosystem material is in Theme 5 Grade five of Elementary School. This study aimed to design and analyze the feasibility, practicality, and effectiveness of interactive PowerPoint learning media on student learning outcomes in the fifth-grade science content of elementary school. Using interactive Powerpoint learning media in the fifth-grade science content in elementary schools is expected to increase students' motivation and learning outcomes.

2. METHOD

This type of research is development research. Development research is developing and producing a product using media, tools, and learning strategies to overcome classroom/laboratory learning. In developing this interactive PowerPoint learning media using the ADDIE Model, which consists of 5 Stages: Analysis (Analyze), Design, Development, Implementation, and Evaluation. The product trial phase in this development research consists of product feasibility, product practicality, and product effectiveness. Product development research uses four data collection methods: observation, interviews, rating scale, and test. Observation and interview methods were conducted to obtain data related to the field's situation, conditions, reality, and needs. Then the rating scale is used to collect data from the reviews of learning material experts and learning media experts. The test measures the effectiveness of using interactive PowerPoint as a learning medium. The type of test used is an objective test. The test subjects were two learning material experts, two learning media experts, and 11 students. In the instrument of multiple choice questions, the quality is examined first before being used in the field. The quality of the instrument must meet important requirements, namely the validity of the test items, the reliability of the test, the distinguishing power of the test, and the level of difficulty of the test items. The instrument grid is presented in Table 1 and Table 2.

Table 1. Material Expert Instruments

No	Aspect	Indicator
1.	Curriculum	1) The suitability of the material with Core Competencies, Basic Competencies, Indicators, and learning objectives.
2.	Contents	1) The breakdown of material description 2) Clarity of material description 3) Ease of understanding the material 4) The suitability of the material with students' real life
3.	Visual	5) The suitability of the image with the material
4.	Language	1) The suitability of the rules of the language. 2) Readability of text 3) The language used is easy to understand
5.	Evaluation	4) The suitability of the evaluation with the material

(Suartama, 2016)

Table 2. Learning Media Expert Instruments

No	Aspect	Indicator
1.	Appearance	1) Product display quality 2) The suitability of the design with the characteristics of students
2.	Text	1) Font size compatibility 2) Readability of the text
3.	Picture	1) Use of images that support learning 2) Image quality 3) Image placement
4.	Technical Operation	1) There are navigation buttons 2) Consistency of button placement 3) Background color match
5.	Color	11) Image color clarity 12) Balanced color display
6.	Animation	11) Animation quality 12) Interesting use of animation
7.	Audio	13) Proper use of music

(Suartama, 2016)

The product validity analysis technique uses the Aiken validity formula. The Aiken validity formula is used to process the questionnaire data from the review of learning material experts and learning media experts, which are converted according to the table of validity criteria presented in Table 3.

Table 3. Aiken Validity Criteria

Range	Predicate/Qualification
$V \leq 0,4$	Low Validity
$0,4 < V < 0,8$	Medium Validity
$V \geq 0,8$	High Validity

The product validity analysis technique uses the Aiken validity formula. The Aiken validity formula is used to process the questionnaire data from the review of learning material experts and learning media experts, which are converted according to the table of validity criteria presented in Table 4.

Table 4. Five Scale Conversion Guidelines

Score Range	Predicate/Qualification
3,6 - 4,0	Very good
3,1 - 3,5	Good
2,6 - 3,0	Enough
2,1 - 2,5	Not good
1,0 - 2,0	Very Bad

The analysis of the effectiveness of the media on student learning outcomes was carried out using the T-Test formula for the correlated sample. Hypothesis testing used t-test correlated samples and using the SPSS application. Paired Sample T-Test technique. The provisions of the data analysis of the Paired Sample Test technique are if the value of Sig. (2-tailed) < 0.005, then H0 is rejected, and H1 is accepted, whereas if the value of Sig. (2-tailed) > 0.005, then H0 is accepted, and H1 is rejected.

3. RESULT AND DISCUSSION

Result

The results of this study are interactive PowerPoint learning media on the science content of the fifth-grade elementary school ecosystem material. This research was conducted in the fifth grade of Elementary School at SD Negeri 4 Belimbing in the 2021/2022 academic year. The subjects of this study were all fifth-grade students, totaling 11 students. As for the development of interactive PowerPoint learning media using the ADDIE Model, namely analyze (analysis), design (design), development (development), implementation (implementation), and evaluation (evaluation). Following the product

development model used in developing interactive PowerPoint learning media in the fifth-grade science content of elementary school, there are five stages to go through. The analysis stage (Analyze) was conducted by observation and interviews with teachers and students. At this stage, the problems found in SD Negeri 4 Belimbing were obtaining information about student learning styles, the media used during the learning process, and the problems faced by teachers in carrying out classroom learning. Based on the results of interviews and observations, it was found that students' scores on science lesson content were low and did not meet the Minimum Completeness Criteria determined by the school. Due to the lack of student interest in participating in learning, the learning media used did not vary. The learning process was not following students' learning styles. Based on student interviews, students are more interested in varied learning media. They prefer to use interactive learning media that is multisensory oriented (using the sense of capture) in the learning process.

The second stage is the Design stage. The activities compile the developed media's designs or sketches at the design stage. The design or sketch is then consulted with the supervisor for input and suggestions. Besides that, the media's validity, practicality, and effectiveness are arranged at this stage. In the third stage, namely the Development stage, there are three stages carried out: the stage of making ICT-based interactive PowerPoint learning media, the stage of making content validity testing instruments, and the stage of making practical instruments for teacher responses and student responses. At the stage of making media, the first thing to do is to add learning materials, animated images, and audio/dubbing into PowerPoint. Educational games, learning videos, and practice questions are included so that the media created can become interactive and multisensory-oriented media. The interactive PowerPoint learning media is presented in [Figure 1](#). After the media is finished, proceed to the next stage of making Content Validity Instruments for Validators. This instrument consists of aspects that need to be assessed. The purpose of making this instrument is to determine the quality and feasibility of the product developed following the expertise of each validator and based on predetermined aspects. Product content validation is carried out by experts, material experts, and learning media experts. The last stage, namely the stage of making practical instruments for teacher responses and student responses. The process of preparing this instrument was made to know the teacher's response and student response to the results of the developed media. Two practitioners/teachers and three students carried out the practical trial phase.

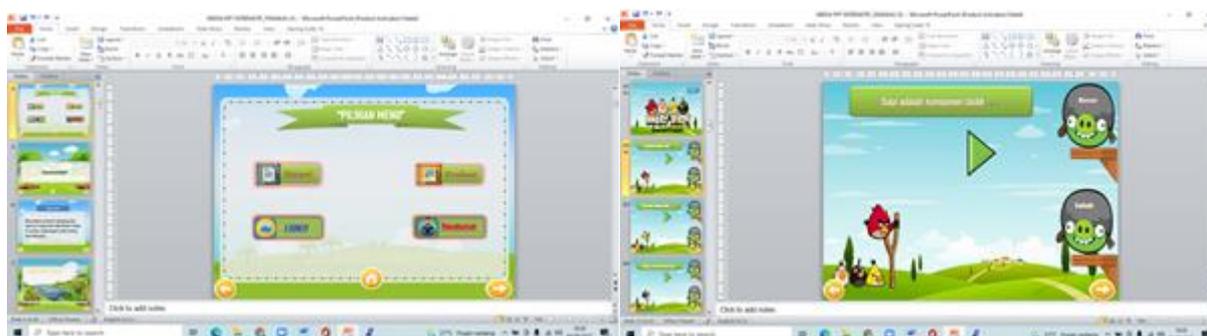


Figure 1. Interactive Powerpoint Learning Media

At the Implementation stage, interactive PowerPoint media were developed, and field trials were conducted on fifth-grade elementary school students. Before the media is implemented on students, students are first given an initial test (pre-test) to measure students prior knowledge of the material contained in the learning media. The test used as the initial test has gone through a trial by learning material experts. The number of pre-test questions is ten items. After doing the pre-test, the use of interactive PowerPoint learning media continued. The implementation of interactive PowerPoint learning media is carried out in 1 meeting with an allocation of 90 minutes, with the help of facilities in the form of LCDs and laptops. After being given a pre-test and treatment, a post-test/final test was given to determine student learning outcomes before and after using interactive PowerPoint learning media. At the final stage/evaluation stage, an assessment is carried out to validate the product made through product expert testing. The product validation test aims to test the level of feasibility and practicality of the products that have been made. Meanwhile, the effectiveness test aims to measure the effectiveness and success of the products that have been made. At each stage of interactive PowerPoint learning, media development, evaluations, and revisions are carried out to improve and refine the resulting product. The formative assessment is carried out throughout the media development process. A summative assessment is carried out to determine whether or not the product developed in the learning process is effective by conducting

an effective test. The results of data analysis on the development of interactive PowerPoint learning media will be presented in three things related to the results of product evaluation, including an analysis of the results of the validity/feasibility of developing interactive PowerPoint learning media. Practical analysis in terms of teacher and student responses and analysis of the effectiveness of interactive PowerPoint learning media on student learning outcomes in science content. The results of the three data analyses will be described further. Based on the results of the validity data of interactive PowerPoint learning media by learning materials experts, the results of 0.93 from materials and learning media experts obtained 0.89 results in the high validity category. Thus, interactive PowerPoint learning media is valid and feasible to use. Then the results of the practical analysis of the development of interactive PowerPoint learning media obtained results of the teacher response test data analysis obtained 4.0 results, and the student response test data results obtained 4.0 results, so they were very good qualifications. So it can be concluded that interactive PowerPoint learning media is practical.

The effectiveness of developing interactive PowerPoint learning media is measured using the multiple choice test method. Multiple choice test questions were used to collect data on student learning outcomes before and after using interactive PowerPoint learning media. The purpose of collecting student value data is to determine the effectiveness of interactive PowerPoint learning media on learning outcomes, which is carried out using the T-Test for samples correlated with the SPSS application. Based on the calculation of the correlated sample t-test using SPSS, the results of the significance (2-tailed) of 0.000 were obtained. This result shows that the significance is smaller than 0.05 ($p < 0.05$), so H_0 is rejected, and H_1 is accepted. Thus, it can be concluded that there is a significant difference in student learning outcomes on the science content before using interactive PowerPoint learning media and after using interactive PowerPoint learning media on the fifth-grade elementary school ecosystem material science content.

Discussion

The results of this study are interactive PowerPoint learning media on the science content of the fifth-grade elementary school ecosystem material. This research was conducted in the fifth grade of Elementary School at SD Negeri 4 Belimbing in the 2021/2022 academic year. The subjects of this study were all fifth-grade students, totaling 11 students. As for the development of interactive PowerPoint learning media using the ADDIE Model, namely analyze (analysis), design (design), development (development), implementation (implementation), and evaluation (evaluation). Interactive PowerPoint learning media is a multisensory-oriented media that uses the sense of capture in the learning process. This media aims to increase students' motivation and learning outcomes, especially in the fifth-grade science content of elementary schools. The results of this study indicate that the developed interactive PowerPoint learning media has gone through a series of development stages and has been validated by experts in their fields and tested. The interactive PowerPoint learning media on the science content has undergone several testing and improvement stages, such as the feasibility of the media by experts, the practicality of the media by teachers and students, and the effectiveness of learning media. All these stages are carried out to perfect the interactive PowerPoint learning media so that they are truly capable and feasible to be used in the learning process. If the media used in the interesting and interactive category will facilitate the absorption of knowledge by students and increase student motivation to learn (Rasvani & Wulandari, 2021; Widari et al., 2021).

First, the developed interactive PowerPoint learning media obtained high qualifications from learning material experts. Presentation of material in the media can make it easier for students to understand the material and achieve learning objectives to impact the quality of learning outcomes. The suitability of core competencies, basic competencies, indicators, and learning objectives, with material descriptions adapted to the 2013 curriculum used by schools. The suitability of Core Competencies, Basic Competencies, Indicators, learning objectives, and materials are the main things that need to be considered in developing a learning media. It is so that the learning media has objectives along with a clear description of the material following what will be instilled in students. The media should contain sequential material based on what you want to achieve and teach (Mustofa & Syafi'ah, 2018; Nurfadhillah et al., 2021). Second, interactive PowerPoint learning media received high validity qualifications from the design aspect. Interactive PowerPoint learning media ensures the right visual presentation. The visuals of the media certainly greatly affect the quality of the media developed. Media visuals will play an important role in stimulating students' senses to arouse students' desire and motivation to learn (Asmaria, 2017; Hassan et al., 2021). The learning media developed are designed with cellphones so that images, writing, colors, animations, and audio in the media are in harmony and harmony to clarify the material in the learning media (Sudarma et al., 2015; Suparman et al., 2020). Therefore, the visual aspect is important in assessing the developed media design. The presentation of interactive media increases student learning motivation. Audio, pictures, and animations will arouse students' interest and emotions to increase

students' motivation in learning (Ibnu Dwi Kustadiyono, 2020; Rosmiati, 2019) so that the presentation of the media will affect students' learning motivation along with learning outcomes and the achievement of learning objectives.

Based on the discussion, it shows interactive PowerPoint learning media so that it is capable and feasible to be used in the learning process. This finding is reinforced by previous research, which states that interactive PowerPoint learning media is suitable for learning (M. R. Andriani & -, 2016; Dewi & Manuaba, 2021). Developing creative and innovative learning media by utilizing technology, one of which is interactive powerpoint-based learning media that is practical to use (Ayu & Qohar, 2019; Kalifah & Prastowo, 2021). The interactive PowerPoint learning media received positive responses from teachers and student from media users. It shows that the learning media developed is interesting in the minds of students and teachers alike. This research implies that students who use interactive PowerPoint learning media can be more enthusiastic and motivated to learn. There is an increase in student learning outcomes, provide new and different learning experiences in learning activities and create a pleasant learning atmosphere. In addition, this media can help vary learning media so that learning activities are not boring or monotonous. Interactive PowerPoint learning media creates variations in learning media that follow students' development and learning styles. However, this study has limitations, namely that the trial sample used is small, so the results obtained are less than optimal. It is recommended that teachers and further research can implement this media for more students.

4. CONCLUSION

The interactive PowerPoint learning media is feasible and effective in learning and can improve student learning outcomes in elementary school's fifth-grade science content. Suggestions can be conveyed that teachers can use interactive PowerPoint learning media optimally and according to students' learning styles.

5. REFERENCES

- Abbas, B., Halimah, A., Nursalam, N., & Mattoliang, L. A. (2020). Pengembangan Media Pembelajaran Berbasis Multimedia. *Al Asma: Journal of Islamic Education*, 2(1), 97. <https://doi.org/10.24252/asma.v2i1.13380>.
- Agusti, N. M., & Aslam, A. (2022). Efektivitas Media Pembelajaran Aplikasi Wordwall Terhadap Hasil Belajar IPA Siswa Sekolah Dasar. *Jurnal Basicedu*, 6(4), 5794–5800. <https://doi.org/10.31004/basicedu.v6i4.3053>.
- Amarulloh, A., Surahman, E., & Meylani, V. (2019). Refleksi Peserta Didik Terhadap Pembelajaran Berbasis Digital. *Metaedukasi*, 1(1), 13–23. <https://doi.org/10.37058/metaedukasi.v1i1.977>.
- Andriani, M. R., & -, W. (2016). Pengembangan Media Pembelajaran Power Point Interaktif Melalui Pendekatan Saintifik untuk Pembelajaran Tematik Integratif Siswa Kelas 2 SDN Bergas Kidul 03 Kabupaten Semarang. *Scholaria: Jurnal Pendidikan Dan Kebudayaan*, 6(1), 143. <https://doi.org/10.24246/j.scholaria.2016.v6i1.p143-157>.
- Andriani, R. (2019). Motivasi Belajar Sebagai Determinan Hasil Belajar Siswa. *Jurnal Pendidikan Manajemen Perkatoran*, 4(1), 80–86. <https://doi.org/10.17509/jpm.v4i1.14958>.
- Asmaria, A. (2017). Penggunaan Media Gambar Untuk Meningkatkan Hasil Belajar IPS Siswa Kelas II SDN 003 Pagaran Tapah Darussalam Kabupaten Rokan Hulu. *JURNAL PAJAR (Pendidikan Dan Pengajaran)*, 1(1), 108. <https://doi.org/10.33578/pjr.v1i1.4377>.
- Asriyanti, F. D., & Purwati, I. S. (2020). Analisis Faktor Kesulitan Belajar Ditinjau dari Hasil Belajar Matematika Siswa Kelas V Sekolah Dasar. *Sekolah Dasar: Kajian Teori Dan Praktik Pendidikan*, 29(1), 79–87. <https://doi.org/10.17977/um009v29i12020p079>.
- Audie, N. (2019). Peran Media Pembelajaran Meningkatkan Hasil Belajar. *Prosiding Seminar Nasional Pendidikan FKIP*, 2(1), 586–595. <http://jurnal.untirta.ac.id/index.php/psnp/article/view/5665>.
- Ayu, P., & Qohar, A. (2019). Pengembangan Media Pembelajaran Matematika Interaktif Berbasis Powerpoint pada Materi Kerucut. *Jurnal Matematika Kreatif Inovatif*, 10(2), 119–124. <https://doi.org/10.15294/kreano.v10i2.16814>.
- Baker, J. P., Goodboy, A. K., Bowman, N. D., & Wright, A. A. (2018). Does teaching with PowerPoint increase students' learning? A meta-analysis. *Computers & Education*, 126, 376–387. <https://doi.org/10.1016/j.compedu.2018.08.003>.
- Dewi, N. L. P. S., & Manuaba, I. bagus S. (2021). Pengembangan Media Pembelajaran Powerpoint Interaktif Pada Mata Pelajaran IPA Siswa Kelas VI SD. *Jurnal Penelitian Dan Pengembangan Pendidikan*, 5(1), 76–83. <https://doi.org/10.23887/jppp.v5i1.32760>.

- Fatmawati, F., Yusrizal, Y., & Hasibuan, Marhamah, A. (2021). Pengembangan Media Pembelajaran Berbasis Aplikasi Android untuk Meningkatkan Hasil Belajar IPS Siswa. *Elementary School Journal Pgsd Fip Unimed*, 11(2), 134–143. <https://doi.org/10.24114/esjpgsd.v11i2.28862>.
- Gaikwad, N., & Tankhiwale, S. (2014). Interactive E-learning module in pharmacology: a pilot project at a rural medical college in India. *Perspectives on Medical Education*, 3(1), 15–30. <https://doi.org/10.1007/s40037-013-0081-0>.
- Hapsari, G. P. P., & Zulherman, Z. (2021). Pengembangan Media Video Animasi Berbasis Aplikasi Canva untuk Meningkatkan Motivasi dan Prestasi Belajar Siswa. *Jurnal Basicedu*, 5(4), 2384–2394. <https://doi.org/10.31004/basicedu.v5i4.1237>.
- Harefa, D., Telaumbanua, T., Sarumaha, M., Ndururu, K., & Ndururu, M. (2020). Peningkatan Hasil Belajar IPA pada Model Pembelajaran Creative Problem Solving (CPS). *Musamus Journal of Primary Education*, 3(1), 1–18. <https://doi.org/10.35724/musjpe.v3i1.2875>.
- Hassan, M., Khasanah, A., & Patriyani, R. (2021). *Pengembangan Media Pembelajaran*. Tahta Media Group.
- Hutapea, R. H. (2019). Instrumen Evaluasi Non-Tes dalam Penilaian Hasil Belajar Ranah Afektif dan Psikomotorik. *Jurnal Teologi Dan Pendidikan Kristen Kontekstual*, 2(2), 151–165. <https://doi.org/10.34307/b.v2i2.94>.
- Ibnu Dwi Kustadiyono. (2020). Model Inquiry dengan Media Diorama untuk Meningkatkan Hasil Belajar Siswa. *Jurnal Penelitian Dan Pengkajian Ilmu Pendidikan: E-Saintika*, 4(1).
- Iga Raspati, M., & Maria Zulfiati, H. (2020). Pengembangan Multimedia Interaktif Menggunakan Powerpoint Dalam Pembelajaran Tematik. *Tunas: Jurnal Pendidikan Guru Sekolah Dasar*, 5(2), 46–59. <https://doi.org/10.33084/tunas.v5i2.1437>.
- Iswanto, E., Suharmono, R., & Hidayat, S. (2018). Pengaruh Penggunaan Media Pembelajaran Berbasis Powerpoint Dan Buku Teks Terhadap Hasil Belajar Ilmu Pengetahuan Alam (Ipa) Materi Tata Surya Siswa Kelas Vi Semester Ganjil Tahun Pelajaran. *Jurnal of Education Teknologi and Innovation (JETI)*, 1(2), 7–20. <https://doi.org/10.31537/jeti.v1i2>.
- Kalifah, D. R. N., & Prastowo, A. (2021). Pengembangan Media Pembelajaran Power Point Sub Tema Keberagaman Budaya Bangsaaku Kelas IV/SD. *Jurnal Program Studi PGMI*, 8, 75–87. <https://doi.org/10.36835/modeling.v8i1.700>.
- Kurniawati, A. (2019). Analisis Efektifitas Multimedia Interaktif Dalam Menghadapi Tantangan Pendidikan di Era Globalisasi Industri 4 . 0. *Jurnal Penelitian Pembelajaran Fisika*, 5(2), 147–154. <https://doi.org/10.24036/jppf.v5i2.107438>.
- Kusuma, J. W., & Hamidah, H. (2020). Perbandingan Hasil Belajar Matematika Dengan Penggunaan Platform Whatsapp Group Dan Webinar Zoom Dalam Pembelajaran Jarak Jauh Pada Masa Pandemi Covid 19. *JIPMat*, 5(1). <https://doi.org/10.26877/jipmat.v5i1.5942>.
- León, S. P., & Martínez, I. G.-. (2021). Impact of the provision of PowerPoint slides on learning. *Computers & Education*, 173, 104283. <https://doi.org/10.1016/j.compedu.2021.104283>.
- Mahesti, G., & Koeswanti, H. D. (2021). Pengembangan Media Pembelajaran Permainan Monopoli Asean untuk Meningkatkan Hasil Belajar Tema 1 Selamatkan Makhluk Hidup Pada Siswa Kelas 6 Sekolah Dasar. *Mimbar PGSD Undiksha*, 9(1), 30–39. <https://doi.org/10.23887/jjgsd.v9i1.33586>.
- Martina. (2019). Pengaruh Lingkungan Sekolah Terhadap Hasil Belajar Siswa Pada Mata Pelajaran Pendidikan Agama Islam. *Jurnal PAI*, 1(2), 164–180. <https://doi.org/10.19109/pairf.v1i2.3235>.
- Masturah, E. D., Mahadewi, L. P. P., & ... (2018). Pengembangan Media Pembelajaran Pop-Up Book pada Mata Pelajaran IPA Kelas III Sekolah Dasar. *Jurnal EDUTECH ...*, 6, 212–221. <https://doi.org/10.23887/jeu.v6i2.20294>.
- Mudasih, I., & Subroto, W. T. (2019). Comparison of Student Learning Outcomes Through Video Learning Media with Powerpoint. *International Journal of Educational Research Review*, 4(2), 183–189. <https://doi.org/10.24331/ijere.517997>.
- Mustofa, R., & Syafi'ah, R. (2018). Pengembangan Media Pembelajaran Pop Up Book Materi Kenampakan Permukaan Bumi Mata Pelajaran IPA Kelas III SD. *ELSE (Elementary School Education Journal)*, 2, 30–41. <https://doi.org/10.30651/else.v2i2.1723>.
- Muthoharoh, M. (2019). Media PowerPoint dalam Pembelajaran. *Jurnal Tasyri*, 2(April), 21–32. <https://doi.org/10.29138/tasyri.v26i1.66>.
- Novita, Lia. (2019). Pengaruh Penggunaan Media Pembelajaran Audio Visual Animasi Terhadap Hasil Belajar Subtema Benda Tunggal dan Campuran. *JTIEE (Journal of Teaching in Elementary Education)*, 3(1), 46–53. <https://doi.org/10.30587/jtiee.v3i1.1127>.
- Novita, Lina, & Sundari, F. S. (2020). Peningkatan Hasil Belajar Siswa Menggunakan Media Game Ular Tangga Digital. *Jurnal Basicedu*, 4(3), 716–724. <https://doi.org/10.31004/basicedu.v4i3.428>.
- Nurfadhilah, S., Tantular, L. D., Syafitri, H. A., Fauzan, M. I., & Haq, A. S. (2021). Analisis Pengembangan Media Interaktif Berbasis Power Point Pada Pembelajaran Jarak Jauh di MI Darussaman. *PENSA :*

- Jurnal Pendidikan Dan Ilmu Sosial*, 3(2), 267–279. <https://doi.org/10.36088/pensa.v3i2.1351>.
- Nurrita, T. (2018). Pengembangan media pembelajaran untuk meningkatkan hasil belajar siswa. *MISYKAT: Jurnal Ilmu-Ilmu Al-Quran, Hadist, Syari'ah Dan Tarbiyah*, 3(1), 171. <https://doi.org/10.33511/misykat.v3n1.171>.
- Ponza, P. J. R., Jampel, I. N., & Sudarma, I. K. (2018). Pengembangan Media Video Animasi pada Kelas IV SD. *Jurnal Edutech*, 6(1), 9–19. <https://doi.org/10.23887/jeu.v6i1.20257>.
- Prayitno, & Mardianto, M. F. F. (2020). Peningkatan Hasil Evaluasi Pembelajaran Daring saat Pandemi Covid-19 Berdasarkan Media Powerpoint Interaktif. *MUST: Journal of Mathematics Education, Science and Technology*, 5(2), 171 – 181. <https://doi.org/10.30651/must.v5i2.6119>.
- Purnasari, P. D., & Sadewo, Y. D. (2021). Strategi Pembelajaran Pendidikan Dasar di Perbatasan Pada Era Digital. *Jurnal Basicedu*, 5(5), 3089–3100. <https://doi.org/10.31004/basicedu.v5i5.1218>.
- Rasvani, N. L. A., & Wulandari, I. G. A. A. (2021). Pengembangan Media Pembelajaran Aplikasi MaCa (Materi Pecahan) Berorientasi Teori Belajar Ausubel Muatan Matematika. *Jurnal Mimbar PGSD Undiksha*, 9(1), 74–81. <https://doi.org/10.23887/jjgsd.v9i1.32032>.
- Rejeki, R., Adnan, M. F., & Siregar, P. S. (2020). Pemanfaatan Media Pembelajaran pada Pembelajaran Tematik Terpadu di Sekolah Dasar. *Jurnal Basicedu*, 4(2), 337–343. <https://doi.org/10.31004/basicedu.v4i2.351>.
- Rosmiati, M. (2019). Animasi Interaktif Sebagai Media Pembelajaran Bahasa Inggris Menggunakan Metode ADDIE. *Paradigma - Jurnal Komputer Dan Informatika*, 21(2), 261–268. <https://doi.org/10.31294/p.v21i2.6019>.
- Setiawan, D., Selvyana, K., Hidayat, A., & Rahmadani, N. K. A. (2022). Powerpoint Interaktif Materi Interaksi Manusia dengan Lingkungannya Kelas Sekolah Dasar. *Jurnal Basicedu*, 6(1), 1201–1209. <https://doi.org/10.31004/basicedu.v6i1.2183>.
- Soimah, I. (2018). Pengaruh Media Pembelajaran Berbasis Komputer Terhadap Hasil Belajar IPA Ditinjau Dari Motivasi Belajar Siswa. *Natural: Jurnal Ilmiah Pendidikan IPA*, 5(1), 38–44. <https://doi.org/10.30738/natural.v5i1.2559>.
- Suartama, I. K. (2016). Evaluasi dan Kriteria Kualitas Multimedia Pembelajaran. *Universitas Pendidikan Ganesha*, January 2016, 1–17. <https://www.researchgate.net/publication/335541585%0AEvaluasi>.
- Sudarma, I. K., Tegeh, I. M., & Prabawa, D. G. A. P. (2015). *Desain Pesan Kajian Analitis Desain Visual Teks dan Image*. Graha Ilmu.
- Suliani, M., & Ahmad, A. M. (2021). Faktor yang Mempengaruhi Hasil Pembelajaran Jarak Jauh di MTs Negeri 6 HSS di Masa Pandemi Covid-19. *SJME (Supremum Journal of Mathematics Education)*, 5(2), 179–188. <https://doi.org/10.35706/sjme.v5i2.5155>.
- Suparman, T., Prawiyogi, A. G., & Susanti, R. E. (2020). Pengaruh Media Gambar Terhadap Hasil Belajar IPA Pada Siswa Sekolah Dasar. *Jurnal Basicedu*, 4(2), 250–256. <https://doi.org/10.31004/basicedu.v4i2.332>.
- Syachtiyani, W. R., & Trisnawati, N. (2021). Analisis Motivasi Belajar Dan Hasil Belajar Siswa Di Masa Pandemi Covid-19. *Prima Magistra: Jurnal Ilmiah Kependidikan*, 2(1), 90–101. <https://doi.org/10.37478/jpm.v2i1.878>.
- Widari, N. L. P. E., Astawan, I. G., & Sumantri, M. (2021). Bahan Ajar Interaktif Bermuatan Pendidikan Karakter pada Materi Sistem Pernapasan pada Manusia dan Hewan. *Mimbar Ilmu*, 26(3). <https://doi.org/10.23887/mi.v26i3.37088>.
- Yulawati, L., Aribowo, D., & Hamid, M. A. (2020). Analisis Kebutuhan Pengembangan Media Pembelajaran E-Modul Berbasis Adobe Flash pada Mata Pelajaran Pekerjaan Dasar Elektromekanik. *Jupiter (Jurnal Pendidikan Teknik Elektro)*, 5(1), 35–42. <https://doi.org/10.25273/jupiter.v5i1.6197>.
- Zahra, F., Wahyudiana, E., & Hadi, W. (2021). Pengembangan Media Interaktif Powerpoint Berbasis Model Discovery Learning Pada Muatan Ipa Kelas Iv Sd. *OPTIKA: Jurnal Pendidikan Fisika*, 5(2), 104–112. <https://doi.org/10.37478/optika.v5i2.1058>.
- Zain, A. A., & Pratiwi, W. (2021). Analisa Kebutuhan Pengembangan Media Powerpoint Interaktif Sebagai Media pembelajaran Tematik Kelas V SD. *Elementary School: Jurnal Pendidikan Dan Pembelajaran Ke-SD-An*, 8(1), 75–81. <https://doi.org/10.31316/esjurnal.v8i1.1205>.