Science And Mathematics Education Journal
2025, VOL. 01, NO. 01, 152–167

The Development of Science Learning Media Based on Discovery Learning Assisted by Canva on Electricity Material for Students of SMP Negeri 7 Muaro Jambi

Novita Sari[1*], Boby Syefrinando[2], Dedi Sastradika[3]
[1]Program Study Tadris Fisika Universitas Islam Sulthan Thaha Syaifudin Jambi, Jambi

**Corresponding author*: novitasari13012003@gmail.com

Article history:

Submitted: January 31, 2025
Accepted: May 23, 2025
Published: June 01, 2025

Keywords:

Media Pembelajaran, Pembelajaran Penemuan, *Canva,* Hasil Pembelajaran, *Sains*

ABSTRACT

This research article aims to develop science learning media based discovery learning using Canva and measure its affect on underst learning results. This investigate employments inquire about improvement (R&D) strategy utilizing the ADDIE (Analyze, P Create, Actualize, Assess) show. The product validation results place media developed in the "very good" category with an average me expert validation value of 4.54 and an average content expert valida value of 4.8. Discovery Learning-based learning media is proven to h a very high level of practicality, with teachers giving an assessmen 69.2% (practical) and students giving an assessment of 80% (practical). The overall average is 74.6%, indicating that the medi effective in supporting learning. The students' average pretest score 41.47, which increased significantly to 82.31 after the intervention. t-test results obtained a T value of 26.227 and a P value of 0.000, wh shows that there is a significant difference between the pretest posttest results. However, this study was limited to 32 students, wh may limit the generalizability of the results to similar situations populations.

PENGEMBANGAN MEDIA PEMBELAJARAN IPA BARBASIS *DISCOVERY LEARNING* BERBANTUAN *CANVA* PADA MATERI LISTRIK UNTUK SISWA SMP NEGERI 7 MUARO JAMBI

Kata Kunci:

Learning Media, Discovery Learning, Canva, Learning Outcomes, Science

ABSTRAK

Tujuan artikel berikut adalah untuk mengembangkan me pembelajaran sains berbasis Metodologi penelitian dan pengemban digunakan dalam penelitian ini dengan menggunakan model ADI (*Analysis, Design, Implementation, and Evaluation*) Media y dikembangkan diklasifikasikan sebagai "sangat baik" berdasar validasi produk, dengan skor validasi rata-rata 4,54 dari ahli media 4,8 dari ahli materi. Media pembelajaran berbasis *Discovery Learn* memiliki relevansi praktis tinggi, dinilai 69,2% (praktis) oleh guru 80% (sangat praktis) oleh siswa. Rata-rata keseluruhan adalah 74,(menunjukkan bahwa media tersebut efektif mendukung pembelaja Nilai rata-rata pra-tes siswa adalah 41,47, yang meningkat se signifikan menjadi 82,31 setelah intervensi. Untuk pengujian ini, ni adalah 26,227 dan nilai p adalah 0,000. Hanya 32 siswa y berpartisipasi dalam penelitian ini, sehingga generalisasi hasil mung terbatas pada konteks dan populasi yang sama.

1. INTRODUCTION

Education plays a crucial role in shaping an individual's personality and skills. According to Gulo & Harefa (2022), quality education produces high-quality human resources, which contribute to a nation's development. Education is not only aimed at delivering knowledge but also at fostering active learning that enhances individual potential (Dewi & Izzati, 2020). This aligns with Law Number 20 of 2003, which emphasizes that education is an effort to create a learning process aimed at developing students' intellectual capacity and skills.

In science classes, particularly physics, students are often challenged to understand abstract concepts. Physics, as a branch of science that studies natural phenomena, requires deep comprehension and strong analytical skills (Irawati et al., 2021). However, students often perceive physics as a difficult and intimidating subject. This is supported by the findings of Kurniawati Wahyu et al. (2024), which indicate that many students struggle to understand electricity, a fundamental topic in physics.

At SMP Negeri 7 Muaro Jambi, the use of instructional media is still predominantly lecture-based, particularly in physics classes, leading to low student participation. The aim of this study is to develop discovery-based learning media using the Canva application, which is expected to enhance students' learning outcomes. This approach encourages students to become active participants in the learning process and enables them to independently discover key concepts through inquiry-based activities. In this context, the study seeks to identify and develop instructional materials that address students' needs in electricity education and assess their effectiveness in improving learning outcomes.

2. METHOD

This study employs a research and development (R&D) model using the five-stage ADDIE approach, which includes analysis, design, development, implementation, and evaluation. The research subjects were seventh-grade students of SMP Negeri 7 Muaro Jambi, with a total of 32 respondents. Data were collected using various techniques, including pre-tests and post-tests to measure student learning outcomes, as well as observations and interviews to obtain additional information about the learning process. The instruments used in this study consisted of tests to assess students' academic achievement and surveys to evaluate students' responses to the learning media. **Data Analysis Techniques:** The collected data were analyzed using statistical methods such as t-tests to compare students' pre-test and post-test scores, along with descriptive analysis to describe the characteristics of the data.

3. RESULTS AND DISCUSSION

The research findings indicate a significant improvement in students' learning outcomes following the implementation of discovery-based learning media using Canva.

1. Analysis Phase (Analyze)

   An assessment of school facilities and the learning environment revealed limitations in the use of interactive learning media. To align with the learning needs of ninth-grade students studying science, specifically electricity, at SMP Negeri 7 Muaro Jambi, this learning media was developed. At this stage, three key needs analyses were conducted: 1. Examination of students' characteristics and learning challenges,2. Analysis of students' competencies, and Assessment of the school environment and available facilities.

2. Design Stage

   The designed media meet the criteria in terms of both content and delivery.

   a. Selection and Determination of Software

Canva is the primary application used in this study. Additionally, several other programs and software for graphic design, animation, video editing, and audio editing were utilized to support the development of educational materials.

b. Development of Media Assessment Instruments

Instruments were designed to evaluate the developed educational products or materials. Two lecturers from the Tadris Physics study program provided the instruments used to assess the product's validity after undergoing validation.

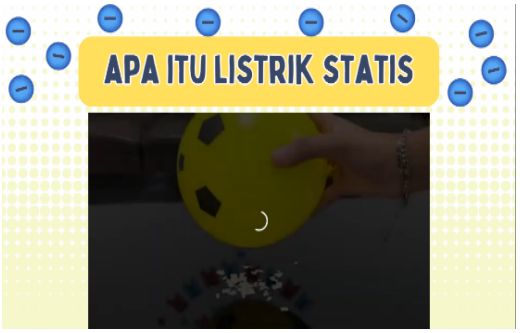
3. Development Stage

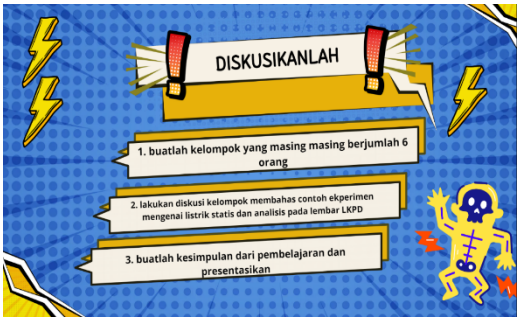
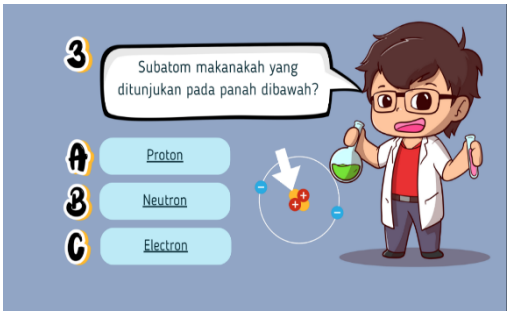
The product validation results showed an average score of 4.54 from media experts and 4.8 from subject matter experts, both categorized as excellent.

(1) Display of Discovery Learning-Based Instructional Media

The initial display of the instructional media features a home menu containing the main topics to be discussed.

Table 1.1. Display of Discovery Learning-Based PowerPoint Media

No	Image Display	Description
1.		**Initial View**
1.		**Initial Title Display**
2.		**Stimulus Display**
		

3.		**Identification of Problems**
4.		**Data Collection**
5.		**Data Analysis**
6.		**verification**
7.		**Generalization**

4. Implementation Stage

The average pre-test score of the students before the intervention was 41.47, indicating a low level of initial understanding. After the implementation of the media, the post-test scores showed a significant increase, reaching 82.31.

Table 1.2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
pretest	32	20	60	41.47	8.944
postest	32	73	93	82.31	4.782
Valid N (listwise)	32				

5. Evaluation Stage

The t-test results showed a t-value of 26.227 with a p-value of 0.000, indicating a significant difference between the pre-test and post-test results.

Tabel 1.3 Test of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
pretest	.109	32	.200*	.972	32	.559
postest	.186	32	.007	.939	32	.071

Tabel 1.4 Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
pretest postest	Based on Mean	1.150	4	25	.357
	Based on Median	.545	4	25	.704
	Based on Median and with adjusted df	.545	4	18.109	.705
	Based on trimmed mean	1.142	4	25	.360

4. CONCLUSION

- The Discovery Learning-based instructional media developed using Canva has proven effective in presenting electricity-related materials. The development process included design, testing, and revisions based on feedback from media and subject matter experts. This media is designed to encourage students to actively engage with the material, thereby enhancing their involvement and understanding.

- The validation results from media experts showed an average score of 4.54, while subject matter experts provided an average score of 4.8, both categorized as excellent. This indicates that the developed instructional media meets the expected standards of feasibility and quality. Feedback from experts was also considered and implemented during the development process, further enhancing the media's validity and relevance to the curriculum.
- The Discovery Learning-based instructional media demonstrated a high level of practicality, with teachers rating it at 69.2% (practical) and students at 80% (highly practical). The overall average of 74.6% indicates that the media is effective in supporting the learning process, although there is room for improvement from the teachers' perspective. Overall, both teachers and students found the media beneficial in the teaching and learning process.
- The study shows that the use of this instructional media has led to a significant improvement in student learning outcomes. The pre-test and post-test results revealed a clear difference, with the average post-test score (82.31) being substantially higher than the pre-test score (41.47). The t-test confirmed that this difference is statistically significant, indicating that the Discovery Learning-based instructional media is effective in enhancing students' understanding of electricity-related concepts.

REFERENCES

Alfian, A. (2023). *Instructional Media: Theory and Practice*. Jakarta: Edukasi Publisher.

Astuti, S. (2021). The Use of Canva in Learning. *Journal of Education*, 12(1), 45–58.

Irawati, R., Saputra, D., & Tanjung, R. (2021). Student Learning Outcomes in Interactive Learning. *Scientific Journal of Education*, 9(2), 123–130.

Kamila, N., & Kowiyah, R. (2022). Interactive Media in Education. *Journal of Educational Technology*, 10(3), 201–210.

Kurniawati, W., Wahyu, N., & Others. (2024). Understanding Electricity Concepts in Secondary Schools. *Journal of Physics Education*, 8(1), 15–25.

Novita, L., Rahmawati, S., & Asriningsih, N. (2019). The Influence of Interactive PowerPoint Media on Student Learning Outcomes. *Journal of Educational Research*, 15(2), 88–95.

Susmiati, D. (2020). The Discovery Learning Method in Education. *Journal of Education and Learning*, 14(4), 213–220.

Zebua, M. (2023). The Use of Instructional Media to Enhance Learning Motivation. *Journal of Primary Education*, 11(2), 67–74.