


## Meta-Analysis: The Validity of Using Flipbook Learning Media in Education

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### ABSTRACT

Inovasi pembelajaran 4.0 mendorong penggunaan media digital interaktif seperti *flipbook* untuk meningkatkan motivasi dan hasil belajar. *Flipbook* adalah e-book multimedia yang memuat teks, gambar, video maupun animasi yang menyerupai buku cetak. Validitas oleh ahli materi dan media penting untuk menjamin kelayakan konten dan fungsionalitas media flipbook sebelum digunakan. Metode pengumpulan data yang digunakan adalah meta-analisis. Adapun teknik pengambilan data dilakukan dengan menelusuri sejumlah jurnal yang relevan dan terpercaya. Terdapat 10 artikel yang digunakan sebagai sampel, yang membahas pengembangan flipbook atau validitas flipbook. Data yang diperoleh dari meta-analisis ini menjadi acuan dalam penelitian ini. Berdasarkan meta-analisis, terdapat tiga komponen, yaitu isi, bahasa, dan penyajian. Persentase rata-rata yang didapatkan dari ketiga komponen ini sangat tinggi. Adapun rata-rata komponen tersebut adalah 90,29% untuk validitas isi, 89,27% untuk validitas bahasa, dan 91,18% untuk validitas penyajian. Secara umum, hasil validitas konten, bahasa, dan penyajian masuk ke dalam kategori sangat valid. Sehingga, berdasarkan hasil analisis validitas, flipbook dapat dinyatakan sebagai produk yang sangat valid untuk diaplikasikan dalam aktivitas pembelajaran.

*Learning innovation 4.0 encourages the use of interactive digital media such as flipbooks to increase motivation and learning outcomes. A flipbook is a multimedia e-book that contains text, images, videos, and animations that resemble a printed book. Validity by subject matter and media experts is important to ensure the suitability of the content and functionality of the flipbook media before use. The data collection method used was meta-analysis. The data collection technique was carried out by searching a number of relevant and reliable journals. There were 10 articles used as samples, which discussed the development of flipbooks or the validity of flipbooks. The data obtained from this meta-analysis became a reference in this study. Based on the meta-analysis, there were three components, namely content, language, and presentation. The average percentage obtained from these three components was very high. The average of these components is 90.29% for content validity, 89.27% for language validity, and 91.18% for presentation validity. In general, the results of content, language, and presentation validity fall into the category of highly valid. Thus, based on the validity analysis results, flipbooks can be declared a highly valid product for application in learning activities.*



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### INTRODUCTION

The learning process in the era of the Industrial Revolution 4.0 demands rapid innovation and adaptation, especially in the use of learning media. Learning media assists the teaching and learning process so that messages are clearer and learning objectives are achieved effectively and efficiently. Media serves as a learning resource for obtaining messages/information from teachers, which can

increase student motivation and interest in learning, as well as learning outcomes (Nurrita, 2018). The shift from conventional to digital learning has led to the abandonment of print media and its replacement with more interactive and portable technology-based media (Yuniarti et al., 2023). The integration of technology in learning media is crucial to producing learning experiences that are relevant to the needs of 21<sup>st</sup> century students (Faiza & Wardhani, 2024). This innovation has driven the development of various digital media, including flipbooks, which offer a visual and functional experience that differs from traditional textbooks (Purnomo et al., 2024).

A flipbook is a type of electronic book (e-book) presented with an interface resembling a printed book, where users can "flip" pages digitally, often accompanied by the sound effect of turning paper (Syarifah et al., 2023). This medium is developed using specialized applications or software capable of packaging text, images, videos, and animations into a concise and engaging format. The main advantage of flipbooks lies in their interactive and multimedia nature, facilitating the visualization of complex material that is difficult to explain through text alone (Lestiyani et al., 2025). In addition, flipbooks offer practicality because they can be accessed through various digital devices such as laptops and smartphones, making them highly supportive of independent and distance learning models.

Validity in the context of learning media development research refers to the extent to which the developed media actually measures or meets the criteria it should, and can be justified theoretically and empirically (Ramadhan et al., 2024). Validity is a key prerequisite before media is tested on a limited or large scale to ensure that the media is feasible, both in terms of content and construction (Dewimarni et al., 2022). Media that is not substantially valid can mislead students' understanding, while media that is not constructively valid can cause difficulties in its operation and presentation. Therefore, validity testing by experts (validators) is a fundamental step in the media development procedure.

The validity testing procedure for flipbook media was carried out using a validation sheet instrument filled out by lecturers or teachers who were subject matter experts and media experts. Subject matter experts were tasked with ensuring the accuracy of concepts and the suitability of the material, while media experts assessed the suitability of the appearance and functionality of the media (Andani et al., 2022). The data collected from the validation sheet is in the form of quantitative scores, which are then analyzed using percentage or average score calculations. The percentage results are then interpreted into qualitative criteria, such as "Valid," "Highly Valid," or "Revision" (Wicaksono et al., 2020). Media that received the "Highly Valid" rating indicated that the flipbook had met the optimal theoretical feasibility standards and was ready to be tested in a practical context (Putri & Hendratno, 2025).

Flipbooks that have been proven valid theoretically and empirically have great potential in improving the quality of learning. High validity ensures that all content presented is accurate and that the media construction supports learning objectives, minimizing the risk of misinformation or technical difficulties when used (Sahara & Adistana, 2023). By combining content validity and an attractive appearance, flipbooks can serve as an effective supplement or primary learning resource to foster student independence and improve understanding of abstract material (Karimah & Churiyah, 2021). Therefore, validity research is an essential step to ensure that flipbook media innovations truly contribute positively and are worthy of implementation in the modern educational ecosystem (Pratiwi et al., 2025).

## METHOD

The type of research used is meta-analysis. Meta-analysis is a systematic analysis using statistical data to calculate conclusions from several research results (Indriani et al., 2023). The data sample was obtained from articles published in accredited journals from several related sources, using the keyword "Flipbook Development". The population in this study consisted of all written documents in the field of education that discussed the use of flipbooks.

Data classification is the most important requirement in facilitating data collection and processing in meta-analysis. The title, author, and year of the study, as well as the level of validity, are variables used in data classification and produce the information needed to calculate the level of validity of flipbook use. The compilation of meta-analysis validity data used includes calculating the average validity of content, presentation, and language in each article to be analyzed. Journal analysis is carried out by examining the flipbook validity results by several experts.

According to Puspita et al. (2017) validity data can be calculated using the following formula.

$$\text{Validity value} = \frac{\text{Total score}}{\text{Maximum score}} \times 100\%$$

A product is considered valid if its validity percentage exceeds 65%. The criteria for assessing the validity level are presented in Table 1 below.

**Table 1.** Product Validity Criteria

Percentage	Category
80 - 100	Highly Valid
66 - 79	Valid
56 - 65	Fairly Valid
40 - 55	Less Valid
30 - 39	Not Valid

Source: Puspita et al. (2017)

Validity is a measure of the suitability of a work that has been produced. The validity score for each article that has been analyzed will produce conclusions that are relevant to the focus of the research to be conducted.

## RESULT AND DISCUSSION

Based on an analysis of 10 articles related to flipbook development or flipbook validity, characteristics were found in each article. These characteristics are shown in the following table.

**Tabel 2.** Flipbook Validity Data

No.	Article Title	Assessment Aspect			Source
		C	L	P	
1.	Development of Flipbooks on Biodiversity Material to Train Science Literacy Skills of 10 <sup>th</sup> Grade High School Students	100%	100%	99,21%	(Hidayati & Indana, 2025)
2.	Feasibility of Digital Flipbook Learning Media on <i>Nepenthes</i> spp. West Kalimantan for Teaching Biodiversity Material in Grade X	90%	83%	91%	(Nurhayati et al., 2025)
3.	Development of a Flipbook-Based E-Module on The Human Circulatory System	89%	97%	92%	(Serina et al., 2025)
4.	Development of Electronic Books Using the Flipbook Maker Application on Energy in Life Systems at SMP 6 Jember	87,5%	81,67%	91,25%	(Suhardi, 2023)
5.	Development of Metacognition-Based Basic Mathematics E-Book Teaching Materials Using Flipbook Maker for Biology Education Students at STKIP Persada Khatulistiwa Sintang	88,95%	83,35%	91,25%	(Lisa & Wedyawati, 2020)
6.	Analysis of the Validity of Canva-Based Flipbook Digital Learning Media in IPAS Subjects for Grade 3 Elementary School Students	80%	92,5%	88%	(Af'idah & Sumadi, 2025)
7.	Development of Flipbook-Based Learning Media for Two-Variable Linear Equation Systems in Grade VIII Junior High School	93,75%	78,65%	82,97%	(Widyasari et al., 2021)

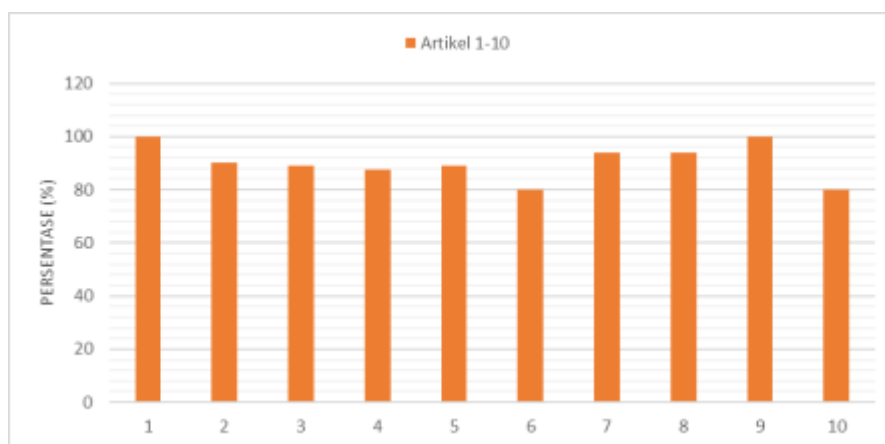
No.	Article Title	Assessment Aspect			Source
		C	L	P	
8.	Development of Interactive Flipbook-Based Learning Media on Human Nervous System Material to Improve Learning Motivation of Grade XI High School Students	93,75%	92%	96,25%	(Wijayanti & Isnawati, 2023)
9.	Development of a Problem-Based Learning (PBL) Flipbook on Environmental Pollution Subtopics to Foster Critical Thinking Skills in 10th Grade High School Students	100%	100%	98,35%	(Agustina & Fitrihidajati, 2020)
10.	Development of a Flipbook on Soil Surface Insect Diversity	80%	84,6%	81,6%	(Rozi et al., 2021)
<b>Average</b>		<b>90,29%</b>	<b>89,27%</b>	<b>91,18%</b>	
		<b>Highly Valid</b>	<b>Highly Valid</b>	<b>Highly Valid</b>	

**Note: C = Content, L = Language, P = Presentation**

Based on Table 2, the aspects that became the reference for this study were content, language, and presentation. The validity results in terms of feasibility were obtained from 10 journals discussed, with an average of 90.29% (highly valid), an average in terms of language of 89.27% (highly valid), and an average in terms of presentation of 91.18% (highly valid). The average results obtained from the 10 journals selected according to their characteristics prove that flipbooks are valid teaching materials in supporting the learning process. Validity is an assessment of a design or product development. According to (Andani et al., 2022), the purpose of subject matter and media validity testing is to determine the suitability of the media and improvements based on the validator's suggestions. From the analysis of the article, it is known that there are a number of validity aspects that must be met by a product. These aspects are as follows.

**Content validity**

The validation results provided by experts regarding content validity produced a valid development product. The content contained in the developed product or flipbook is effective in accordance with the validator's instructions and the applicable curriculum. Based on the presentation of the meta-analysis results of the articles in Table 2, the validation results can be seen in the following figure.



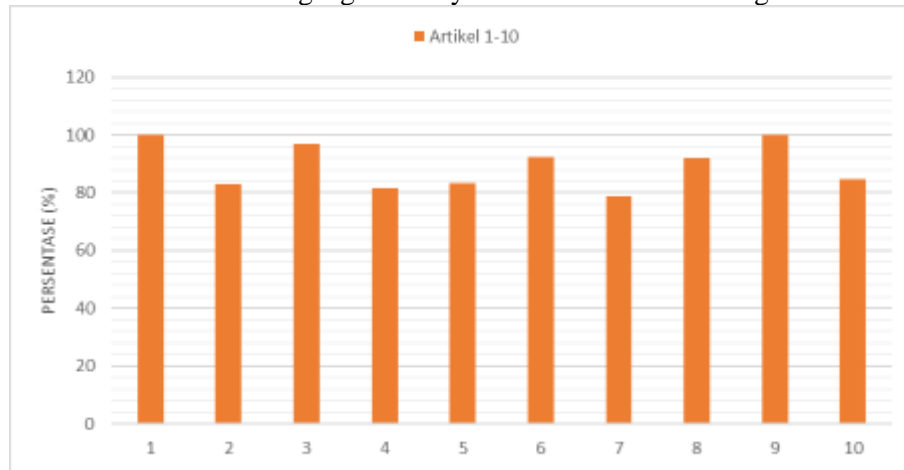
**Figure 1.** Content Validity Percentage

Based on Figure 1, the articles analyzed in terms of flipbook content validity have an average of 90.29% in the highly valid category. This indicates that the flipbook development carried out by the researchers is in accordance with the basic competency standards, indicators, objectives, and main activities during the learning process. High validity scores are obtained through a careful assessment process by experts or validators, who generally consist of subject matter experts and media/design

experts. The main function of content validation is to ensure that all content presented in the flipbook (such as concepts, definitions, sample questions, and depth of information) is accurate, relevant to the curriculum or learning objectives, and coherent and complete in accordance with the targeted material coverage. By obtaining the "Highly Valid" category, this flipbook is considered to have met strict substantive standards and is suitable for use as a primary learning resource without requiring fundamental revisions to its content.

**Language validity**

The selection of appropriate language in accordance with EYD is very important in product development. Testing the language validity of the 10 articles used as reference sources is essential for the research to be conducted. The language validity test can be seen in the figure below.

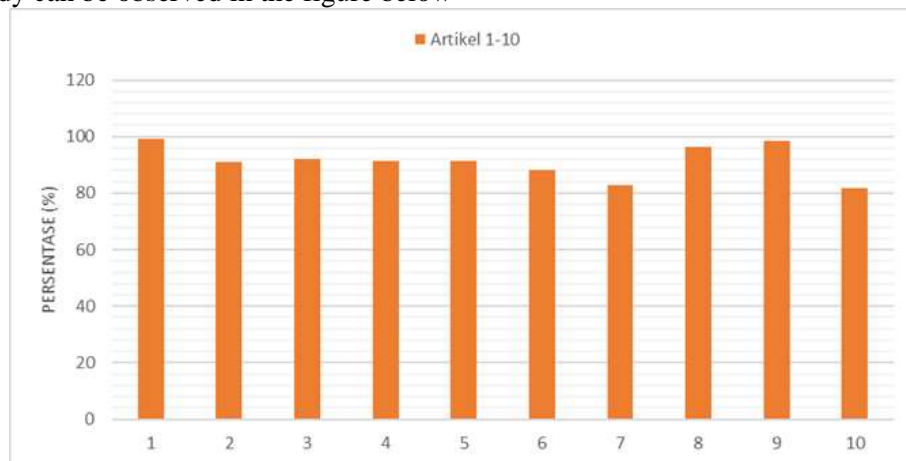


**Figure 2.** Language Validity Percentage

The linguistic validity of this learning media product is in the Very Valid category with a validation percentage of 89.27%. This figure indicates that the language used in the learning media is very good and meets the established linguistic standards. Specifically, linguistic aspects such as grammatical accuracy (syntax and morphology), appropriateness of word choice (diction) for the target learners, clarity of sentences for easy understanding, coherence between sections, and consistent and standard use of terminology have been assessed as very adequate. The high linguistic validity ensures that the messages and lesson materials can be conveyed effectively without causing misinterpretation or difficulty in understanding due to the use of language. Therefore, the developed product is highly suitable for use from a linguistic perspective.

**Presentation validity**

Presentation validity aims to determine the attractiveness of the product developed to stimulate students' interest in learning. The presentation validity obtained from the analysis of 10 articles referred to in this study can be observed in the figure below



**Figure 3.** Presentation Validity Percentage

This flipbook learning media product has demonstrated a very high level of presentation validity, reaching a percentage of 91.18% based on the results of validation by experts or validators. This figure clearly places the media in the Highly Valid category. This indicates that This optimal presentation quality ensures that the material presented in the flipbook can be accepted, understood, and used effectively by students without significant obstacles caused by weaknesses in its appearance.

## CONCLUSION

From the results of a meta-analysis conducted using data on content, language, and presentation validity from 10 articles, it can be concluded that flipbooks are highly valid as teaching media and learning resources. Based on an analysis of the 10 articles, the articles with the highest content validity were articles 1 and 9, which each received a validity score of 100%. The articles with the highest language validity aspects of media presentation, such as layout, visual design, text readability, use of color, illustrations, and overall technical quality, have been designed and executed very well and professionally. This optimal presentation quality were Articles 1 and 9, with a percentage of 100%. In terms of presentation validity, the article with the highest validity score was Article 1, with a validity percentage of 99.21%. The average validity obtained from the 10 articles based on content validity is 90.29% (highly valid), the average language validity is 89.27% (highly valid), and the average presentation validity is 91.18% (highly valid). Therefore, based on the average results obtained, the developed flipbook is suitable for use by educators as teaching material and by students to facilitate understanding of learning material and improve student learning achievement.

## REFERENCE

- Af'idah, S. L., & Sumadi, S. (2025). Analisis Validitas Media Pembelajaran Digital Flipbook Berbasis Canva Pada Mata Pelajaran IPAS Kelas 3 Sekolah Dasar. *Jurnal Ilmiah Profesi Pendidikan*, 10(3), 2722–2728.
- Agustina, D. W., & Fitrihidajati, H. (2020). Pengembangan Flipbook Berbasis Problem Based Learning (PBL) pada Submateri Pencemaran Lingkungan untuk Melatihkan Keterampilan Berpikir Kritis Peserta Didik Kelas X SMA. *Berkala Ilmiah Pendidikan Biologi (BioEdu)*, 9(2), 325–339.
- Andani, T., M, I. Z., Yuliani, H., Azizah, N., & Jennah, R. (2022). Analisis Validasi Media Pembelajaran E-Book Berbasis Flip Pdf Professional Pada Materi Gelombang Bunyi Di Sma. *Jurnal Kumparan Fisika*, 4(3), 213–220.
- Dewimarni, S., Rizalina, R., & Zefriyenni, Z. (2022). Validitas Media Pembelajaran Statistika Berbasis Android dengan Teknik Peta Konsep untuk Meningkatkan Pemahaman Konsep Statistika. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, 6(1), 329–337.
- Faiza, N. N., & Wardhani, I. S. (2024). Media Pembelajaran Abad 21 : Membangun Generasi Ditigal Yang Adaptif. *Jurnal Media Akademik (JMA)*, 2(12), 3031–5220.
- Hidayati, N. A. R., & Indana, S. (2025). Pengembangan Flipbook pada Materi Keanekaragaman Hayati untuk Melatihkan Keterampilan Literasi Sains Siswa Kelas X SMA. *Berkala Ilmiah Pendidikan Biologi (BioEdu)*, 14(1), 32–44.
- Indriani, R. P., Sigit, D. V., & Miarsyah, M. (2023). Meta-analisis: Pengaruh Media E-learning Terhadap Keterampilan Berpikir Kritis dan Kreatif. *Cetta: Jurnal Ilmu Pendidikan*, 6(1), 58–71.
- Karimah, S. A., & Churiyah, M. (2021). Meningkatkan kemandirian dan hasil belajar peserta didik menggunakan Kvisoft Flipbook Maker berbasis Android. *Jurnal Ekonomi, Bisnis Dan Pendidikan*, 1(6), 538–545.
- Lestiyani, A. P., Hilaliyah, T., & Riansi, E. S. (2025). Pengembangan Media Flipbook Terintegrasi Canva Dalam Pembelajaran Teks Biografi Kelas X Sma It Putri Al Hanif. *Jurnal Basataka (JBT)*, 8(1), 336–352.
- Lisa, Y., & Wedyawati, N. (2020). Pengembangan Bahan Ajar E-Book Matematika Dasar Berbasis Metakognisi Menggunakan Flipbook Maker untuk Mahasiswa Pendidikan Biologi STKIP Persada Khatulistiwa Sintang. *VOX EDUKASI: Jurnal Ilmiah Ilmu Pendidikan*, 11(1), 68–79.
- Nurhayati, N., Rahayu, H. M., & Qurbaniah, M. (2025). Kelayakan Media Pembelajaran Flipbook Digital Nepenthes spp. Kalimantan Barat Untuk Pembelajaran Materi Keanekaragaman Hayati Kelas X. *Biodik*, 11(1), 137–145.
- 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.
- Pratiwi, D. M. D., Setiani, R., & Dirgantoro, A. (2025). Inovasi Media Flipbook Berbasis Problem Based Learning Pada Materi Ekosistem Untuk Siswa Sekolah Dasar. *Andragogi: Jurnal Pendidikan Dan Pembelajaran*, 5(2), 129–140.
- Purnomo, P. E. A., Agustini, K., & Sudatha, Ig. W. (2024). Peran Flipbook Sebagai Media Pembelajaran Inovatif Dalam Pembelajaran Abad 21. *Jurnal Riset Dan Inovasi Pembelajaran*, 4(3), 2001–2015.
- Puspita, A., Kurniawan, A. D., & Rahayu, H. M. (2017). Pengembangan Media Pembelajaran Booklet Pada Materi Sistem Imun Terhadap Hasil Belajar Siswa Kelas XI SMAN 8 Pontianak. *Jurnal Bioeducation*, 4(1), 64–73.
- Putri, M. D. C., & Hendratno. (2025). Pengembangan Media Electronic Flipbook Untuk Keterampilan Menyimak Pada Materi Teks Fiksi Kelas V Sekolah Dasar. *Jurnal Penelitian Pendidikan Guru Sekolah Dasar (JPPGSD)*, 13(10), 2753–2763.
- Ramadhan, M. F., Siroj, R. A., & Afgani, M. W. (2024). Validitas and Reliabilitas. *Journal on Education*, 6(2), 10967–10975.
- Rozi, Z. F., Triyanti, M., Sari, D., & Waluyo, N. A. (2021). Pengembangan Flipbook Keanekaragaman Serangga Permukaan Tanah. *Keanekaragaman Reptilia (Ordo Squamanta) Di Pusat Suaka Satwa Elang Jawa, Taman Nasional Gunung Halimun Salak*, 4(2), 508–520.
- Sahara, A. I., & Adistana, G. A. Y. P. (2023). Pengembangan Media Pembelajaran Interaktif Berbasis Articulate Storyline 3 pada Materi Perhitungan Volume Pekerjaan Pondasi dan Sloof. *Jurnal Kajian Pendidikan Teknik Bangunan (JKPTB)*, 9(2), 1–11.
- Serina, Panjaitan, R. G. P., & Wahyuni, E. S. (2025). Development of a Flipbook-Based E-Module on The Human Circulatory System. *Biosfer: Jurnal Pendidikan Biologi*, 18(2), 370–385.
- Suhardi, A. (2023). Pengembangan Buku Elektronik Menggunakan Aplikasi Flipbook Maker Pada Materi Energi Dalam Sistem Kehidupan Di Smp 6 Jember. *Vektor: Jurnal Pendidikan IPA*, 4(1), 1–9.
- Syarifah, S. K., Windiyani, T., & Suchyadi, Y. (2023). Pengembangan E-Modul Menggunakan Flipbook Pada Kelas V Subtema 3 Usaha Pelestarian Lingkungan. *Didaktik : Jurnal Ilmiah PGSD STKIP Subang*, 9(2), 2611–2619.
- Wicaksono, A. A., Sunarti, T., & Zainuddin, A. (2020). Validitas dan Reliabilitas Instrumen Penilaian Kinerja Praktikum pada Materi Alat Optik Kelas XI SMA. *Inovasi Pendidikan Fisika*, 09(03), 325–331.
- Widyasari, I., Zetriuslita, Istikomah, E., & Herlina, S. (2021). Pengembangan Media Pembelajaran Berbasis Flipbook Pada Materi Sistem Persamaan Linear Dua Variabel Dikelas VIII SMP. *Jurnal Derivat: Jurnal Matematika Dan Pendidikan Matematika*, 8(1), 61–71.
- Wijayanti, R. N., & Isnawati. (2023). Pengembangan Media Pembelajaran Berbasis Flipbook Interaktif Pada Materi Sistem Saraf Manusia Untuk Meningkatkan Motivasi Belajar Siswa Kelas XI SMA. *Berkala Ilmiah Pendidikan Biologi*, 12(2), 298–310.
- Yuniarti, A., Titin, Safarini, F., Rahmadia, I., & Putri, S. (2023). Media Konvensional dan Media Digital dalam Pembelajaran. *Journal Education and Technology*, 4(2), 84–95.