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Development of an interactive heyzine flipbook e-module for ipas with a deep learning approach in elementary schools

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Abstract

This research aims to develop an interactive e-module using Heyzine flipbook integrated with a deep learning approach for the IPAS (Science and Social Studies) subject in elementary schools. The deep learning approach in this study refers to a pedagogical strategy that emphasizes conceptual understanding, meaningful learning, and active student engagement. The e-module was developed using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). Validity was assessed by three experts (media, content, and language) using a Likert-scale questionnaire, while practicality was evaluated by one teacher and 26 fourth-grade students through response questionnaires. The results showed an average validity score of 4.7 (highly valid) and an average practicality score of 4.69 (highly practical). Based on these findings, the developed e-module is declared valid and practical, thus feasible for use in the learning process. Further research is needed to examine its effectiveness in improving student learning outcomes.

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1. Introduction

The rapid advancement of information technology has transformed educational practices, making the development of interactive e-modules a necessity rather than a supplementary tool. In elementary education, interactive e-modules offer flexibility and engagement, particularly for Generation Alpha students—those born from the 2010s to the mid-2020s—who are immersed in digital environments from an early age (Maryanto, 2025). These students are accustomed to using smartphones, tablets, and multimedia content, yet they often face challenges in maintaining focus and developing social skills during conventional learning. One promising digital medium is the Heyzine flipbook, which integrates various features such as links, videos, images, and audio,

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enabling dynamic and accessible learning experiences (Febriantie et al., 2024; Hermansyah et al., 2023).

In the context of Science and Social Studies (IPAS) in elementary schools, such interactive media can help make abstract concepts more concrete and foster student engagement. The use of flipbook media has also been shown to increase reading interest and activities in early elementary grades (Nurdiansah, 2022), indicating its broader potential to enhance student engagement across subjects. Previous studies have demonstrated the effectiveness of Heyzine flipbook-based e-modules in improving student learning outcomes. Iwan et al. (2024) reported an average score of 82.21 in the high category after using a flipbook e-module. Similarly, Salma et al. (2023), Puspitaningrum and Witanto (2024), and Simamora et al. (2025) found that Heyzine flipbook e-modules increased student participation and learning achievement. However, most of these studies focused on general subject matter or specific topics without systematically integrating a pedagogical approach that promotes deeper conceptual understanding.

Moreover, the development of Heyzine flipbook e-modules specifically for IPAS at the elementary level remains limited, and few studies have employed a structured research and development framework to ensure validity and practicality. Recent research on digital flipbook development for IPAS has shown promising results in improving learning outcomes when combined with structured development models (Parinduri et al., 2025; Nurhamidah et al., 2023), yet these studies have primarily focused on effectiveness rather than on establishing validity and practicality as foundational steps. To address this gap, the present study adopts a deep learning approach. In this research, *deep learning* is defined operationally as a pedagogical strategy that emphasizes conceptual understanding, meaningful connections between new and prior knowledge, and reflective practice (Aryanto et al., 2025; Mutmainah et al., 2025).

Deep learning encourages students to think critically, engage in problem-solving, and apply their understanding in authentic contexts. Integrating this approach into an interactive e-module is expected to support students' cognitive engagement and make learning more meaningful. The deep learning approach has been applied effectively in elementary education contexts; for instance, it has been used to improve science process skills through simple practicum activities (Mustika et al., 2025) and to integrate knowledge and character development in a holistic curriculum (Fitri et al., 2025). These applications suggest that deep learning can be a powerful pedagogical framework when embedded into instructional materials.

The novelty of this study lies in the systematic development of an interactive Heyzine flipbook e-module for IPAS that explicitly incorporates a deep learning pedagogical framework, using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation) to ensure quality. Unlike previous research that primarily reported effectiveness, this study focuses on establishing the validity and practicality of the e-module as a foundational step before broader implementation. Therefore, the main objective of this research is to develop an interactive Heyzine flipbook e-module for IPAS with a deep learning approach that is valid and practical for use in elementary schools.

2. Method

This study employed a Research and Development (R&D) approach using the ADDIE model, which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation (Sugiyono, 2017; Nasution & Nasution, 2020). The ADDIE model was chosen for its systematic and iterative nature, allowing each stage to inform the next.

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2.1 Analysis

The initial stage involved analyzing learning needs, curriculum requirements, and student characteristics. The focus was on IPAS (Science and Social Studies) content for fourth-grade elementary students, with an emphasis on topics such as states of matter and landforms. This analysis served as the foundation for determining learning objectives and material structure.

2.2 Design

In this stage, the essential components of the e-module were planned, including the content framework, user interface, and integration of deep learning pedagogical elements. The Heyzine flipbook platform was selected for its ability to embed multimedia features such as videos, images, links, and audio, which support interactive learning.

2.3 Development

The design was transformed into a tangible e-module product. Instruments for expert validation were prepared, consisting of Likert-scale questionnaires (1 = strongly disagree, 5 = strongly agree) covering three aspects: media, content, and language. Three experts—one in each field—assessed the e-module. Their feedback and suggestions were used to revise the product.

2.4 Implementation

The revised e-module was then tested for practicality with a small group of users. The subjects were 26 fourth-grade students and one teacher at State Elementary School 165/I Singkawang, Muara Bulian, Batang Hari. Practicality was assessed using response questionnaires that measured ease of use, clarity, and engagement.

2.5 Evaluation

Evaluation was conducted continuously throughout the ADDIE stages. At the final stage, the results of validity and practicality assessments were analyzed to determine the feasibility of the e-module.

2.6 Data analysis

Validity data from expert judgments were analyzed by calculating the mean score for each aspect (media, content, language) and overall. The following criteria were used to interpret the mean scores:

1.00 – 1.75 = Not valid
1.76 – 2.50 = Less valid
2.51 – 3.25 = Moderately valid
3.26 – 4.00 = Valid
4.01 – 5.00 = Highly valid

Practicality data from teacher and student response questionnaires were analyzed using a percentage formula:

$$\text{Percentage of practicality} = \frac{obtained\ score}{maximum\ score}\ x\ 100\%$$

The obtained score was the total score from respondents, and the maximum score was the highest possible score. The resulting percentage was categorized as:

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0% – 25% = Not practical
26% – 50% = Less practical
51% – 75% = Practical
76% – 100% = Highly practical

3. Results

This section presents the outcomes of the ADDIE development stages, focusing on the final e-module product, validity, practicality, and revisions based on expert feedback.

3.1 Product output

The development process resulted in an interactive e-module titled "IPAS E-Module with a Deep Learning Approach" for fourth-grade elementary students. The e-module was created using the Heyzine flipbook platform and covers two main topics: states of matter and landforms in relation to community professions. It integrates multimedia elements such as images, videos, audio, and interactive quizzes. The e-module is accessible online at: https://heyzine.com/flip-book/2fdc8d2aa8.html.

The e-module includes an introductory cover, table of contents, learning materials with illustrations, and evaluation sheets that require students to work in groups and present their findings collaboratively. The cover and table of contents are shown in Figure 1, while the material content is displayed in Figure 2. The evaluation sheet is presented in Figure 3.



Figure 1. Display of the e-module cover and table of contents

The product resulting from this research contains IPAS material for elementary school students, covering topics such as states of matter, landforms and their correlation with community professions, and includes an evaluation. The specific material developed within this e-module can be seen in Figure 2.

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Figure 2. Display of material content within the e-module

Figure 2 shows the initial chapter covers for the material on the states of matter, and the variety of landforms and their correlation with community professions. The selection of colors, both for the background and objects, including the font and its type, was tailored to the characteristics of the students. To maximize the e-module's usability, it is equipped with an evaluation sheet that allows for determining the students' level of comprehension regarding the material studied. The evaluation sheet is presented in Figure 3.



Figure 3. Evaluation sheet within the e-module

The evaluation sheet in the e-module, as shown in Figure 3, contains activities that students must complete in groups, the discussion results of which need to be presented collaboratively in front of the class.

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3.2 Validity

Three experts assessed the e-module using Likert-scale questionnaires (1 = strongly disagree to 5 = strongly agree) covering three aspects: media, content, and language. The average scores for each aspect and the overall validity are presented in Table 1.

Table 1. Validity level of the interactive e-module with a deep learning approach

No	Aspect	Mean Score	Category
1.	Media	4.8	Highly valid
2.	Content	4.6	Highly valid
3.	Language	4.7	Highly valid
	Overall	4.7	Highly valid

The overall average validity score of 4.7 falls into the highly valid category, indicating that the e-module is suitable for further testing.

3.3 Practicality

Practicality was assessed through response questionnaires completed by one teacher and 26 fourth-grade students after using the e-module. The results are shown in Table 2.

Table 2. Practicality level of the interactive e-module with a deep learning approach

No	Respondent	Mean Score (1-5)	Category
1.	Teacher	4.70	Highly practical
2.	Students	4.67	Highly practical
	Overall	4.69	Highly practical

Both the teacher and students rated the e-module as highly practical, with an overall mean of 4.69.

3.4 Revisions based on expert feedback

During the development stage, experts provided suggestions that led to several improvements:

Media expert: Recommended improving the layout consistency and increasing the contrast between text and background. This was implemented by unifying font styles and adjusting background colors for better readability.

Content expert: Suggested adding more examples relevant to students' daily lives and linking concepts more explicitly to the deep learning approach. Additional contextual examples were included, and reflection prompts were added to each section.

Language expert: Advised simplifying sentence structures and ensuring age-appropriate vocabulary. Several sentences were revised, and complex terms were explained in simpler language.

4. Discussion

This study aimed to develop an interactive Heyzine flipbook e-module for IPAS with a deep learning approach and to evaluate its validity and practicality. The findings indicate that the e-module achieved a high level of validity (mean 4.7) and practicality (mean 4.69), signifying that it is feasible for use in elementary school learning contexts. The discussion below interprets these

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findings, links them to existing literature, and outlines the implications and limitations of the study.

4.1 Validity of the interactive e-module

The validity assessment involved three experts in media, content, and language. The average scores for each aspect—media (4.8), content (4.6), and language (4.7)—all fell within the highly valid category. These results suggest that the e-module meets established criteria for instructional material quality. From a media perspective, the high score reflects the suitability of the Heyzine flipbook platform for presenting IPAS content, as it allows integration of multimedia elements that align with the characteristics of elementary school students, who are accustomed to digital environments (Maryanto, 2025). This finding supports previous studies that highlight the advantages of flipbook-based e-modules in enhancing engagement and accessibility (Febriantie et al., 2024; Hermansyah et al., 2023). The development of digital flipbooks for elementary science has also been validated in other contexts, with high feasibility scores reported for media, content, and language aspects (Parinduri et al., 2025; Lishetiyana et al., 2023), confirming that flipbook formats are generally well-received by experts.

The content aspect received a slightly lower but still highly valid score (4.6). This indicates that the material was considered appropriate for the learning objectives and the students' cognitive level. However, the minor difference suggests that further refinement could be made, particularly in linking the content more explicitly to the deep learning approach. Experts recommended adding contextual examples and reflection prompts, which were subsequently incorporated. This iterative process of expert feedback and revision aligns with the ADDIE model's emphasis on continuous improvement (Nasution & Nasution, 2020).

Language validity (4.7) confirms that the e-module uses age-appropriate vocabulary and sentence structures. As noted by Fegiarti and Melisa (2024), language is a critical element in teaching materials, as it directly affects students' comprehension. The high score in this aspect suggests that the e-module is accessible to fourth-grade students, a crucial factor for independent learning.

4.2 Practicality of the interactive e-module

Practicality was assessed by one teacher and 26 fourth-grade students after using the e-module. Both groups rated it as highly practical, with mean scores of 4.70 (teacher) and 4.67 (students). These ratings reflect positive perceptions regarding ease of use, clarity, and engagement.

The teacher's high rating suggests that the e-module is easy to implement in classroom settings and aligns with instructional needs. Teachers often face challenges in managing time and technology access (Mutmainah et al., 2025), so a highly practical e-module can serve as a supportive tool that reduces preparation burden while enhancing lesson delivery. The students' positive responses are consistent with the characteristics of Generation Alpha, who are comfortable with digital interfaces and appreciate interactive features (Maryanto, 2025). The inclusion of multimedia elements such as videos, images, and audio likely contributed to their favorable perceptions. Similar findings have been reported in other flipbook implementations, where students showed increased engagement and positive responses (Nurdiansah, 2022; Nurhamidah et al., 2023).

Nevertheless, the practicality scores were based on a limited trial involving one class and a single teacher. While the results are encouraging, they may not be generalizable to all contexts.

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Further trials with larger and more diverse samples are needed to confirm practicality across different school settings.

4.3 Integration of the deep learning approach

A key novelty of this e-module is the explicit incorporation of a deep learning pedagogical framework. In this study, deep learning was operationalized as a strategy that emphasizes conceptual understanding, meaningful connections between new and prior knowledge, and reflective practice (Aryanto et al., 2025; Mutmainah et al., 2025). This was manifested in the e-module through features such as reflective prompts, problem-based activities, and collaborative tasks that require students to apply their understanding in group discussions and presentations.

The integration of deep learning into instructional materials has been shown to enhance science process skills when combined with hands-on activities (Mustika et al., 2025). Additionally, deep learning principles have been effectively embedded in holistic curricula that balance knowledge acquisition with character development (Fitri et al., 2025). These studies reinforce the potential of deep learning to make learning more meaningful when properly scaffolded. Although the present study did not measure learning outcomes, the high validity and practicality scores suggest that the design elements intended to support deep learning were well received by experts and users. The content expert's suggestion to add contextual examples and reflection prompts further reinforced the deep learning orientation. Future research should empirically test whether this e-module effectively fosters deep learning outcomes, such as improved critical thinking and conceptual understanding.

4.4 Implications and limitations

The findings have several practical implications. For teachers, the e-module offers a ready-to-use digital resource that supports IPAS instruction with minimal technical barriers. For curriculum developers, the study demonstrates how a structured R&D approach (ADDIE) can produce valid and practical learning materials that integrate contemporary pedagogical approaches. For researchers, the validated e-module provides a foundation for further effectiveness studies. The successful development of flipbook-based materials in this study aligns with broader trends in educational technology where digital flipbooks have been used to increase literacy interest (Lishetiyana et al., 2023) and support project-based learning integrated with STEM (Masykuri, 2025).

This study is limited to the evaluation of validity and practicality. Effectiveness in improving student learning outcomes was not examined. Therefore, claims about the e-module's impact on participation, comprehension, or achievement cannot be made based on the current data. Additionally, the practicality trial was conducted in a single school with a relatively small sample, which may limit the generalizability of the results. Future research should employ experimental or quasi-experimental designs to assess the e-module's effectiveness across multiple schools and contexts, using validated instruments to measure learning outcomes and student engagement. Moreover, as suggested by Masykuri (2025), combining flipbook media with STEM-integrated project-based learning could be an avenue for further exploration.

5. Conclusion and implications

This research successfully developed an interactive Heyzine flipbook e-module for IPAS with a deep learning approach for elementary schools using the ADDIE model. The validity assessment by three experts (media, content, language) resulted in an overall mean score of 4.7 (highly valid), while

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practicality evaluation by one teacher and 26 fourth-grade students yielded an overall mean of 4.69 (highly practical). Based on these findings, the e-module is declared valid and practical, thus feasible for use in the learning process.

The main contribution of this study lies in the systematic integration of a deep learning pedagogical framework into a flipbook-based e-module, which has been validated and tested for practicality. This provides a concrete example of how digital learning materials can be designed to promote conceptual understanding and active engagement, particularly for Generation Alpha students who are accustomed to interactive digital environments.

Practically, the e-module serves as a ready-to-use digital resource that can support teachers in delivering IPAS content more interactively. Teachers can utilize it to facilitate student-centered learning, while students benefit from flexible, engaging, and self-paced learning experiences. For curriculum developers, this research demonstrates a structured approach to developing and validating instructional materials that align with contemporary pedagogical approaches.

6. Limitation

This study is limited to the evaluation of validity and practicality. The effectiveness of the e-module in improving student learning outcomes, participation, or conceptual understanding was not examined. Therefore, claims about the e-module's impact cannot be made based on the current data. Additionally, the practicality trial was conducted in a single school with a relatively small sample (one teacher and 26 students), which may limit the generalizability of the results. Future research should employ experimental or quasi-experimental designs to assess the e-module's effectiveness across multiple schools and contexts, using validated instruments to measure learning outcomes and student engagement.

Credit authorship contribution statement

First Author: Methodology, data analysis, and research funding. **Second Author:** product development, data analysis, product testing. **Third Author**: product development, data analysis, product testing. **Fourth Author:** product testing, article translation.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request. Because the data include human participant information, they are not publicly available to protect participant privacy.

Ethical Declaration

This research was conducted in accordance with the principles of research ethics involving human participants. Institutional approval was obtained from the Faculty of Teacher Training and Education, Universitas Jambi. Permission to conduct the study was granted by the principal and the homeroom teacher of fourth grade at SDN 165/I Singkawang. All participating students were informed about the purpose of the study and their voluntary participation; they were assured that their responses would remain anonymous and would not affect their academic grades. Data were collected and stored anonymously to protect participant privacy. No personally identifiable information was recorded or disclosed.

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Declaration of AI statement
The author used the artificial intelligence tool DeepSeek to ensure improvements in the consistency, grammar, and logical clarity of the research. The AI was used solely as an aid, allowing the author to thoroughly review, edit, and revalidate the content to ensure the paper adhered to the research objectives.

References

Aryanto, S., Meliyanti, M., Amelia, D., Maharbid, D. A., Gumala, Y., & Gildore, P. J. E. (2025). Pembelajaran literasi dan numerasi melalui deep learning: Pendekatan transformasional di sekolah dasar. *Journal of Professional Elementary Education*, 4(1), 49–57.

Febriantie, S. A., Darmawan, W., & Sumantri, Y. K. (2024). Penggunaan e-modul berbasis aplikasi Heyzine flipbook untuk mengembangkan kemampuan historical literacy dalam pembelajaran sejarah abad XXI. *Jurnal Humanitas: Katalisator Perubahan Dan Inovator Pendidikan*, 10(4), 693–711. https://doi.org/10.29408/jhm.v10i4.27623

Fegiarti, D., & Mellisa. (2023). Module teaching materials in the tissue culture course at the Islamic University of Riau. *Perspektif Pendidikan Dan Keguruan*, 14(2), 107–116. https://doi.org/10.25299/perspektif.2023.vol14(2).13694

Fitri, A., Amin, K., Tauhid, Z., & Ramadona, A. (2025). Initiating a full fulfilment curriculum-based deep learning: Integration of knowledge and character in learning. *Jurnal PAJAR (Pendidikan dan Pengajaran)*, 9(1), 96–104.

Hermansyah, S., Nasmilah, N., Pammu, A., Saleh, N. J., Huazheng, H., & Congzhao, H. (2023). Socialization making media learning interactive e-module based flippbook in Elementary School 4 Maiwa. *Pengabdian: Jurnal Abdimas*, 1(1), 1–7. https://doi.org/10.55849/abdimas.v1i1.117

Iwan, I., Sirait, S. H. K., & Fahmi, D. (2024). Development of an interactive e-module based on flipbook protista material to improve student biology learning outcomes. *JIPI (Jurnal IPA dan Pembelajaran IPA)*, 8(2), 131–142. https://doi.org/10.24815/jipi.v8i2.38478

Lishetiyana, V., Septiani, S., Talia, D. I., & Aeni, A. N. (2023). The use of POKUS (Politics of Khulafaur Rasyidin) flipbook in increasing elementary students' literacy interest. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 12(2), 458–472.

Manzil, E. F., Sukamti, S., & Thohir, M. A. (2022). Pengembangan e-modul interaktif Heyzine flipbook berbasis scientific materi siklus air bagi siswa kelas V sekolah dasar. *Sekolah Dasar: Kajian Teori Dan Praktik Pendidikan*, 31(2), 112–123. https://doi.org/10.17977/um009v31i22022p112

Maryanto, R. V. (2025). Fusi horizon dalam pendidikan: Menjembatani kesenjangan komunikasi antara guru dan generasi alfa. *Indonesian Research Journal on Education*, 5(2), 109–115.

Masykuri, M. (2025). STEM-integrated project-based learning with flipbook media to enhance science process skills and learning outcomes. *Jurnal PAJAR (Pendidikan dan Pengajaran)*, 10(1), 49–62.

Mustika, D., Liana, D., & Mamat, N. (2025). The effect of deep learning-based practicum with simple tools on improving the science process skills of prospective teacher students. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 14(5), 616–626.

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Mutia, T. (2025). Efektivitas e-modul interaktif berbasis project based learning terhadap kemampuan berfikir kreatif siswa. *Geodika: Jurnal Kajian Ilmu Dan Pendidikan Geografi*, 9(1), 42–51. https://doi.org/10.29408/geodika.v9i1.28193

Mutmainnah, N., Adrias, A., & Zulkarnaini, A. P. (2025). Implementasi pendekatan deep learning terhadap pembelajaran matematika di sekolah dasar. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 10(1), 848–871.

Nasution, S. W. R., & Nasution, H. N. (2020). Perancangan dan implementasi bahan ajar berbasis penelitian Microsoft Office 2013 pada mata kuliah aplikasi komputer di Institut Pendidikan Tapanuli Selatan. *Jurnal Education and Development*, 8(4), 415–421.

Nurdiansah, Y. (2022). Meningkatkan minat dan aktivitas membaca siswa dengan menggunakan media flipbook kelas II SD. *Jurnal PAJAR (Pendidikan dan Pengajaran)*, 6(5), 1585–1595.

Nurhamidah, R., Safitri, N., & Akmala, M. I. (2023). Implementation of e-flipbook learning media on natural and social sciences' learning outcomes at fourth-grade elementary students. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 12(3), 629–641.

Pandawa, R. R. A. (2021). Analysis of the instrument content validity using the Aiken index on disaster nursing competency assessment. *Journal of Degres*, 20(1), 298–308.

Parinduri, W. M., John, J. A., Rambe, T. R., & Lubis, R. R. (2025). Developing a digital flipbook to improve science learning outcomes for grade IV SDN 026560 Binjai. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 14(4), 554–568.

Puspitaningrum, P. N., & Witanto, Y. (2024). E-module teaching materials based on Heyzine flipbook on the meaning of NKRI for grade IV elementary school. *Journal of Education Research and Evaluation*, 8(3), 423–431.

Ristekdikti. (2017). *Panduan penyusunan perangkat pembelajaran & bahan ajar*. Kementerian Riset, Teknologi, dan Pendidikan Tinggi.

Salma, A. D., Windiyani, T., & Purnamasari, R. (2023). Pengembangan e-modul berbasis aplikasi flipbook kelas IV subtema indahnya keberagaman budaya. *Didaktik: Jurnal Ilmiah PGSD STKIP Subang*, 9(2), 2325–2335. https://doi.org/10.36989/didaktik.v9i2.977

Simamora, E. W., Siregar, N. N., & Ukat, Y. (2025). Pengembangan e-modul interaktif Heyzine flipbook pada mata kuliah landasan pendidikan di Program Studi Pendidikan Guru Sekolah Dasar Universitas Papua. *Jurnal Ilmiah Profesi Pendidikan*, 10(2), 1132–1139.

Sugiyono. (2017). *Metode penelitian dan pendidikan: Pendekatan kuantitatif, kualitatif dan R&D*. Alfabeta.

Sumantri, M., & Permana, J. (2001). *Strategi belajar mengajar*. CV. Maulana.

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