

Feasibility of Articulate Storyline-Based Interactive Learning Media for Introduction to Maps in Grade IV

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Abstract

The rapid advancement of technology in education has encouraged the use of interactive learning media to improve the quality of the learning process. However, before being implemented in classroom instruction, learning media must undergo a validation process to ensure their feasibility. This study aimed to analyze the feasibility of an Articulate Storyline based interactive learning media on the topic of map introduction for fourth-grade elementary school students. The study employed a quantitative approach using a descriptive research design. The research subjects consisted of three validators, namely a material expert, a media expert, and a language expert. Data were collected using a five-point Likert scale validation questionnaire and analyzed descriptively using percentage analysis. The results indicated that the interactive learning media obtained feasibility scores of 94.5% from the material expert, 98.5% from the media expert, and 100% from the language expert, all of which were categorized as highly feasible. These findings demonstrate that the developed media met the feasibility criteria in terms of content, media design, and language aspects, making it suitable for use as a learning medium in Natural and Social Sciences (IPAS) on the topic of map introduction. However, this study is limited to expert validation involving three validators and has not yet been field tested on elementary school students or actual users. The findings imply that Articulate Storyline based interactive learning media has the potential to serve as a high quality instructional medium for map introduction in this specific context, while further empirical evidence is required to generalize these development frameworks to other learning topics and educational levels

Keywords: *Articulate Storyline*, Interactive learning media, media feasibility

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INTRODUCTION

The development of science and technology has driven significant transformations in the learning process across all levels of education, including elementary schools. The integration of technology into teaching provides opportunities for teachers to utilize learning media that are more interactive, engaging, and effective in helping students understand learning materials (Belva Saskia Permana et al., 2024). In the Natural and Social Sciences (IPAS) subject, the use of learning media is particularly important because the nature of the subject requires concepts to be presented in a concrete and easily understandable manner. However, based on a preliminary needs assessment conducted through classroom observations using a structured observation rubric and interviews using a semi structured interview guide with a fourth-grade teacher at SDIT Al-Manar Pekanbaru, the learning process is still predominantly supported by printed textbooks and simple visual media, such as atlases and globes. As a result, students experience difficulties in understanding the topic of map recognition. Furthermore, as documented during the classroom observation phase, the instructional methods employed by the teacher remain largely conventional, consisting mainly of lectures and brief question and answer sessions. These approaches have not been effective in promoting students' engagement and active participation during the learning process. These empirical findings from the needs assessment indicate the urgent need to develop learning media that can support a more effective and meaningful learning experience.

One of the learning media that can be developed to address these challenges is an interactive learning medium based on Articulate Storyline. This software enables the integration of various multimedia elements, including text, images, audio, video, and interactive quizzes, into a single learning medium. As a result, it can enhance the quality of content delivery and promote greater student engagement, as the learning process is no longer limited to one-way instruction (Muzdalifah et al., 2025). However, before the media can be implemented in the classroom, it must undergo a validation process to ensure that it meets the required standards in terms of content, media design, and language, while also aligning with students characteristics and the intended learning objectives (Sundari & Fatonah, 2025). Media feasibility is a crucial stage in educational research and product development, as it serves as the basis for determining whether a product is suitable for implementation in the learning process.

Previous studies have shown that Articulate Storyline based learning media have considerable potential to support the teaching and learning process. For instance, (Muzdalifah et al., 2025) demonstrated that Articulate Storyline based interactive media significantly enhances student motivation during classroom instruction. Similarly, (Belva Saskia Permana et al., 2024) emphasized the general effectiveness of integrating technology based instructional media in improving elementary students cognitive engagement and learning outcomes. While these existing studies provide valuable insights into the post implementation effectiveness of digital tools, research that specifically investigates the pre implementation feasibility and quality validation of Articulate Storyline media specifically through a rigorous tripartite evaluation by subject matter, media, and language experts for the highly abstract topic of map recognition in fourth-grade elementary school remains remarkably scarce.

Furthermore, despite the widespread research on multimedia learning principles, their application remains demographically unbalanced. A recent systematic review by Çeken and Taşkın revealed that 72.1% of multimedia learning studies predominantly

target undergraduate students, while studies focusing on primary school settings account for only 6.62% (Çeken & Taşkın, 2022). This stark demographic gap highlights a critical need to validate multimedia design principles among younger learners, who possess different cognitive development levels. Consequently, validating the instructional quality of Articulate Storyline-based media at the fourth-grade elementary school level offers a significant contribution to addressing this demographic imbalance in educational technology literature

Therefore, this study contributes to the existing literature by providing a comprehensive feasibility analysis of the developed media. This analysis serves as scientific evidence that the learning media meet appropriate quality standards before being implemented in the classroom. The findings of this study are expected to strengthen the body of knowledge on interactive learning media validation and serve as a reference for educational media developers and educators in producing high quality, cognitively appropriate learning materials for young learners.

RESEARCH METHODS

This study employed a quantitative approach with a descriptive research design. The study aimed to analyze the feasibility of Articulate Storyline based interactive learning media on the topic of map recognition based on evaluations conducted by expert validators (Utari & Ramadan, 2023). The research subjects consisted of three expert validators selected through a purposive sampling technique based on specific expertise-based qualification criteria. This purposive sampling approach aligns with descriptive methodologies that select specific expert informants with relevant considerations to obtain objective evaluation data (Prasetyawati, 2023). Additionally, the inclusion of expert validators from both academic and professional practitioner backgrounds is standard practice in educational developmental studies to establish comprehensive product validation (Anugerah & Harini, 2024). This purposive selection of specific subject matter and media experts is widely implemented in international educational technology designs to ensure professional evaluations of digital products (Roemintoyo et al., 2022). To ensure the credibility of the evaluation, each validator in this study was required to hold at least a Master's degree or equivalent in their respective fields (Elementary Education or Social Sciences, Educational Technology, and Linguistics) and possess a minimum of five years of professional or academic experience.

The evaluation covered several aspects, including content feasibility, material presentation, media design, software engineering, visual and audio quality, and language appropriateness. This selection of evaluation aspects aligns with established international frameworks for validating the technical and instructional quality of interactive multimedia learning tools for young learners (Indah Septiani et al., 2020). However, the reliance on only one validator for each specialized domain (one for subject matter, one for media, and one for language) presents a methodological limitation regarding the inter-rater reliability of the assessment. While these single expert evaluations provided highly focused and constructive qualitative feedback, the absence of multiple raters per domain restricts the calculation of inter-rater consensus and statistical validation indices, which is a recognized limitation in individual expert validation designs (Polit & Beck, 2006).

The data source in this study consisted of primary data obtained from the validators' assessments using a validation questionnaire. Before being utilized, the questionnaire instrument itself underwent a rigorous content validation process through expert judgment, where academic

experts evaluated the alignment between the evaluation indicators, item construction, and the theoretical grid to ensure its psychometric soundness and construct adequacy (Ulfah, et al., 2025). The validated instrument utilized a five-point Likert scale with scoring criteria ranging from 5 (highly feasible) to 1 (not feasible) to systematically capture the experts' professional ratings (Hamid et al., 2020).

The collected data were analyzed using descriptive quantitative analysis by calculating the percentage score for each evaluation aspect (Gulo & Harefa, 2022). The feasibility percentage for each evaluated domain was calculated by dividing the total obtained score by the criteria score (Hamid et al., 2020). The formula is presented as follows:

$$Ps = \frac{S}{N} \times 100\%$$

Ps = Percentage

S = Total Obtained Score

N = Maximum Possible Score

The maximum possible score (N) in this analysis is calculated specifically by multiplying the number of questionnaire items, the highest Likert scale value, and the number of validators for each respective aspect. Mathematically, this maximum value is formulated using the equation:

$$N = n \times s \times v.$$

In this formula, the variable n represents the total number of instrument items in the evaluated feasibility aspect, the variable s denotes the highest score on the Likert scale used in this study (which is 5), and the variable v signifies the number of validators assessing that specific domain (which is 1 expert validators). The calculated percentages were then interpreted according to the feasibility criteria to determine the validity of the developed learning media, as presented in table 1 (Permatasari & Rahmawati, 2026):

Table 1. Feasibility Criteria

Skor Rata-rata (%)	Keterangan
81-100	Highly Feasible
61-80	Feasible
41-60	Moderately Feasible
21-40	Less Feasible
0-20	Not Feasible

Based on the research procedures, the data obtained from the validation process were subsequently analyzed to determine the feasibility of the Articulate Storyline based interactive learning media. The results of the analysis served as the basis for evaluating the quality of the developed media and determining its suitability for use as a learning medium for the topic of map recognition in fourth grade elementary school.

RESULTS AND DISCUSSION

The feasibility study of the Articulate Storyline based interactive learning media was conducted through a validation process involving a subject matter expert, a media expert, and a language expert. This tripartite validation method represents an established scientific approach in educational developmental studies to systematically assess a

digital product's instructional, technical, and linguistic quality prior to classroom integration (Indah Septiani et al., 2020). The feasibility assessment was carried out using a validation questionnaire covering the aspects of content, media design, and language. The learning media were considered feasible if they achieved a minimum score of 61%, which falls within the feasible category according to the feasibility interpretation criteria presented in table 1 (Permatasari & Rahmawati, 2026). Based on the analysis, the developed learning media were rated as highly feasible by all three validators, indicating that they met the required quality standards in terms of content, media design, and language. The validation results from each expert are presented in the following sections.

A. Subject Matter Expert Validation Results

The subject matter expert validation was conducted to evaluate the feasibility of the Articulate Storyline based interactive learning media in terms of its content. The assessment focused on the alignment of the content with the learning objectives, the appropriateness of the learning materials, and the presentation of the content to ensure its suitability for the characteristics of fourth grade elementary school students (Rajagukguk et al., 2026). Ensuring a rigorous alignment between digital content layout, curricular standards, and student characteristics is paramount in educational developmental research, as well-structured digital packaging directly maintains the quality and clarity of instructional information delivered to learners (Roemintoyo et al., 2022). The results of the subject matter expert's evaluation of the developed learning media are presented in table 2.

Table 2. Subject Matter Expert Validation Results

No	Assessment Aspect	Percentage	Criteria
1	Content Validity	95%	Highly Feasible
2	Material Feasibility	100%	Highly Feasible
3	Content Presentation	86.6%	Highly Feasible
Average		94.5%	Highly Feasible

Based on the validation results presented in table 2, the Articulate Storyline-based interactive learning media obtained a score of 94.5%, which falls into the highly feasible category according to the subject matter expert. Specially, the content validity aspect received a score of 95%, indicating that the learning materials are well aligned with the Learning Objectives (LOs), the current curriculum, and the cognitive development level of fourth grade elementary school students. According to Anugerah, validating the learning materials through expert judgment is a fundamental process in educational development to systematically determine the validity and quality of the developed product before it is deployed in classrooms (Anugerah & Harini, 2024). In addition, the content is organized systematically, enabling students to understand the material more effectively.

The material appropriateness aspect achieved a score of 100%, indicating that the learning materials are fully aligned with the intended learning objectives, are easy for students to understand, and are relevant to the topic of map recognition (Dier et al., 2026). Meanwhile, the content presentation aspect received a slightly lower score of 86.6%, although it still falls within the highly feasible category. This result indicates that the presentation of the learning materials is effective in

attracting students' interest and encouraging their engagement throughout the learning process.

The high feasibility score obtained from the subject matter expert indicates that the developed interactive learning media has successfully aligned the instructional content with the intended learning objectives and students' cognitive characteristics (Tri Wulandari & Adam Mudinillah, 2022). According to Mayer, presenting systematically organized instructional materials is essential to help learners manage their cognitive capacity and engage in active cognitive processing specifically in selecting, organizing, and integrating information (Mayer, 2017). Consequently, by presenting the material in a form that is appropriate for elementary school students, the developed media has a strong potential to support students in constructing conceptual understanding more effectively.

B. Media Expert Validation Results

The media expert validation was conducted to evaluate the quality of the Articulate Storyline based interactive learning media in terms of its design, appearance, and functionality. The assessment aimed to ensure that the developed media possessed high quality visual and audio elements, user friendly navigation buttons, and well organized interactive content (Ulya & Eliza, 2026). The results of the media expert validation served as the basis for determining the feasibility of the learning media from the design and presentation perspective before its implementation in the classroom. The results of the media expert's evaluation of the developed interactive learning media are presented in table 3.

Table 3. Media Expert Validation Results

No	Assessment Aspect	Percentage	Criteria
1	Visual	97.7%	Highly Feasible
2	Audio	100%	Highly Feasible
3	Software Engineering	100%	Highly Feasible
4	Visual Quality	100%	Highly Feasible
5	Content	100%	Highly Feasible
Average		98.5%	Highly Feasible

Based on the validation results presented in table 3, the developed Articulate Storyline based interactive learning media obtained an exceptional average score of 98.5%, placing it in the highly feasible category according to the media expert. This outstanding rating indicates that the developed media successfully fulfills the required quality standards in terms of visual design, appearance, and functionality, enabling it to support the learning process of fourth grade students effectively. In this design, the visual elements function as crucial cognitive tools to concretize abstract concepts, attract student attention, and systematically enhance information delivery (Arsyad, 2017).

This visual presentation is seamlessly complemented by the strategic integration of audio cues, which enriches the delivery of instructional materials, provides necessary variety, and prevents learning monotony (Daryanto, 2016). Ultimately, the high feasibility of these integrated visual, audio, and functional

components is highly consistent with established international benchmarks in digital learning media development, where structured interactive layouts achieve high media feasibility ratings of 95.3% due to their superior usability and design quality (Hamid et al., 2020).

The visual quality and design of learning media play a significant role in capturing students' attention and fostering interest in the learning process (Roemintoyo et al., 2022). Learning media with an attractive, clear, and learner-appropriate design can facilitate more effective delivery of instructional content and enhance the overall learning experience (Shabrina et al., 2025). From a cognitive theory perspective, this visual presentation is optimized when printed words and corresponding graphics are placed near each other in space, thereby reducing extraneous visual scanning and minimizing split attention effects (Mayer, 2017).

This spatial contiguity is further enhanced by implementing clear signaling principles, such as visual cues or highlights, which successfully direct learners' attention toward essential instructional materials and alleviate extraneous cognitive load (Noetel et al., 2022). Ultimately, the integration of diverse multimedia elements including text, images, animations, audio, and interactive quizzes provides opportunities for students to engage with learning materials through multiple forms of representation, which actively encourages participation. Such characteristics are particularly vital for elementary school students, who generally demonstrate greater interest and enthusiasm in learning when instructional materials are presented in an attractive, structured, and interactive format (Dila Rukmi Octaviana et al., 2022).

C. Language Expert Validation Results

The language expert validation was conducted to evaluate the quality of language use in the Articulate Storyline based interactive learning media. The assessment focused on sentence structure, the use of language that follows Indonesian language conventions, and its suitability with students' cognitive level, age, and emotional development. This validation aimed to ensure that the information presented through the media could be understood effectively and did not lead to multiple interpretations (Zahro, 2025). The results of the language expert validation of the developed learning media are presented in table 4.

Table 4. Language Expert Validation Results

No	Assessment Aspect	Percentage	Criteria
1	Accuracy	100%	Highly Feasible
2	Information Suitability	100%	Highly Feasible
3	Conformity with Indonesian Language Grammar	100%	Highly Feasible
4	Suitability for Students	100%	Highly Feasible
Average		100%	Highly Feasible

Based on the validation results presented in table 4, the developed interactive learning media obtained a perfect score of 100%, placing it in the highly feasible category according to the language expert. This perfect rating indicates that the language formulated in the media has fully fulfilled all quality standards, including

accuracy, informational relevance, and developmental alignment with fourth-grade students. In educational multimedia development, establishing precise and clear message delivery is highly vital to ensure that the instructional content does not lead to misunderstanding or ineffective communication (Budiman et al., 2023). Furthermore, the information presented in digital learning materials must be designed to suit the students cognitive and emotional development, ensuring it is systematically and communicatively organized to facilitate optimal understanding (Wardhayani et al., 2025).

To achieve this, the instructional sentences must strictly adhere to proper grammar and spelling conventions, which ensures that complex geological map concepts are conveyed accurately and professionally (Meliyanti et al., 2025). This rigorous linguistic accuracy is highly consistent with international multimedia design standards, where structured educational tools must employ reasonable and correct language rules to directly foster readability and information connectivity among young learners (Indah Septiani et al., 2020). Consequently, by using conversational and age appropriate language, the developed media successfully minimizes cognitive ambiguity, enabling fourth grade students to focus their working memory entirely on understanding the core map concepts rather than deciphering complex textual structures

Overall, the validation results from the subject matter expert, media expert, and language expert indicate that the Articulate Storyline-based interactive learning media achieved the highly feasible category for use in IPAS learning on the topic of map recognition. The high percentage scores obtained in each aspect demonstrate that the media has fulfilled the feasibility criteria in terms of content, media design, and language quality. Therefore, the developed media meets the quality standards of learning media and is suitable for supporting the learning process in fourth grade elementary school.

The findings of this study demonstrate that the quality of interactive learning media cannot be determined solely by its visual appearance. Instead, feasibility should be evaluated comprehensively by considering the appropriateness of the learning content, the functionality of the media, and the clarity of language. The consistently high validation scores obtained from all expert validators indicate that these three aspects complement one another in producing learning media that meet educational quality standards and are ready for classroom implementation. This finding is consistent with Kasanah et al. (2024), who demonstrated that interactive learning media can achieve high feasibility and support the delivery of learning materials through engaging digital features, reinforcing the importance of validating content, design, and functionality before classroom implementation.

However, several methodological limitations of this study must be acknowledged. First, the validation process relied on a limited number of experts, involving only one specialized validator for each designated domain (subject matter, media, and language). While this focused expert evaluation provided highly constructive qualitative feedback, the absence of multiple raters per domain restricts the calculation of statistical inter-rater agreement indices. Second, the scope of this study was strictly limited to the design and feasibility evaluation stages, without conducting empirical field trials on students to measure the media's practicality and actual learning effectiveness in a classroom environment (Suttrisno, et al., 2025). Lastly, the research was conducted within a single, localized context, focusing exclusively on a single school (SDIT Al-Manar Pekanbaru), fourth-grade students, and one specific geografi topic of map recognition. Consequently, these boundary conditions highlight the need for future research to conduct broader field

testing across diverse school contexts, multiple subject matters, and larger student cohorts to enhance the generalizability and empirical validity of the developed media.

CONCLUSION AND ADVICE

This study shows that the Articulate Storyline based interactive learning media for the topic of map recognition among fourth grade elementary school students achieved feasibility scores of 94.5% from the subject matter expert, 98.5% from the media expert, and 100% from the language expert, all of which were categorized as highly feasible. These results indicate that the developed media has fulfilled the feasibility criteria in terms of content, media design, and language quality, making it suitable for use as IPAS learning media in fourth grade elementary school. These findings emphasize that the expert validation process plays an important role in ensuring the quality of learning media before its implementation in the classroom.

The media that has been categorized as highly feasible is expected to serve as an alternative learning medium that can support a more engaging and interactive IPAS learning process. To build upon these findings, further research should transition from feasibility evaluations to empirical testing using a quasi experimental design specifically a pretest-posttest non-equivalent control group design incorporating broader school contexts and control classes to establish experimental rigor. Future studies should systematically measure practicality indicators, including teacher implementation fidelity, student usability ratings, and system-paced versus self-paced interactive responses. Additionally, effectiveness indicators must be rigorously evaluated, focusing specifically on students' cognitive learning outcomes (such as spatial reasoning and map-comprehension scores), long-term knowledge retention through delayed post-tests, and active learning motivation during IPAS instruction

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REFERENCES

- Admadja, I. P., & Marpanaji, E. (2023). Pengembangan Multimedia Pembelajaran Praktik Individu Instrumen Pokok Dasar Siswa SMK di Bidang Keahlian Karawitan. *Jurnal Pendidikan Vokasi*, 6(2), 173. <https://doi.org/10.21831/jpv.v6i2.8107>
- Aini, K., Rosidi, I., Muharrami, L. K., Hidayati, Y., & Wulandari, A. Y. R. (2023). Uji Kelayakan Media Pembelajaran Videoscribe Berbasis Animation Drawing Menggunakan Model ADDIE pada Materi Pencemaran Lingkungan. *Natural Science Education Research*, 6(1), 112–121. <https://doi.org/10.21107/nser.v6i1.11527>
- Anugerah, R., & Harini, B. (2024). Kevalidan Modul Pembelajaran Berbasis Kearifan Lokal Sumatera Selatan Pada Kelas IV SD Negeri 41 Palembang. *Publikasi Pendidikan*, 14(3), 385. <https://doi.org/10.70713/publikan.v14i3.59020>
- Arsyad, A. (2017). *Media pembelajaran* ((Edisi Rev). Raja Grafindo Persada.
- Belva Saskia Permana, Lutvia Ainun Hazizah, & Yusuf Tri Herlambang. (2024). Teknologi Pendidikan: Efektivitas Penggunaan Media Pembelajaran Berbasis Teknologi Di Era Digitalisasi. *Khatulistiwa: Jurnal Pendidikan dan Sosial Humaniora*, 4(1), 19–28. <https://doi.org/10.55606/khatulistiwa.v4i1.2702>
- Budiman, B., Tanjung, A. A., Simamora, A., Anriani, M., Nst, N. N., Zahara, R., & Andani, S. (2023). Analisis Kalimat Tidak Efektif Pada Artikel Berita. *Education Journal : Journal Educational Research and Development*, 7(2), 182–190. <https://doi.org/10.31537/ej.v7i2.1231>
- Çeken, B., & Taşkın, N. (2022). Multimedia learning principles in different learning environments: a systematic review. *Smart Learning Environments*, 9(1). <https://doi.org/10.1186/s40561-022-00200-2>
- Chumairoh, A. A. W., & Fradana, A. N. (2025). Penggunaan Media Audiovisual dalam Pembelajaran Bahasa Indonesia di Sekolah Dasar. *A. N.*, 8(2). <https://doi.org/10.30605/cjpe.8.2.2025.6362>
- Dahlan, M., Risaldi, A., Azzahra, S., & Angkilang. (2026). Pemanfaatan Media Pembelajaran dalam Meningkatkan Keterampilan Belajar Siswa. *Didaktik: Jurnal Ilmiah FKIP Universitas Mandiri*, 12(02). <https://doi.org/10.36989/didaktik.v12i02.14407>
- Daryanto. (2016). *Media pembelajaran: Peranannya sangat penting dalam mencapai tujuan pembelajaran* (Edisi 2 Re). Gava Media.
- Dier, M., Ritonga, M. J., Mardiah, R., & Rahmad, M. (2026). *Pengembangan E-Learning Berbasis STEM Pada Materi Energi Terbarukan Untuk Melatih Kemampuan Berpikir Kritis Siswa SMA*. 7. <https://doi.org/10.30872/jlpf.v7i1.5366>
- Dila Rukmi Octaviana, Moh Sutomo, & Moh Sahlan. (2022). Pengembangan Media Pembelajaran Berbentuk Power Point Interaktif Dalam Mata Pelajaran Pendidikan Agama Islam Kelas 1 Sekolah Dasar. *Jurnal Riset Madrasah Ibtidaiyah (JURMIA)*, 2(1), 146–154. <https://doi.org/10.32665/jurmia.v2i1.270>
- Gulo, S., & Harefa, A. O. (2022). Pengembangan Media Pembelajaran Interaktif Berbasis Powerpoint. *Educativo: Jurnal Pendidikan*, 1(1), 291–299. <https://doi.org/10.56248/educativo.v1i1.40>
- Hamid, M. A., Yuliawati, L., & Aribowo, D. (2020). Feasibility of electromechanical basic work e-module as a new learning media for vocational students. *Journal of Education and Learning (EduLearn)*, 14(2), 199–211.

- <https://doi.org/10.11591/edulearn.v14i2.15923>
- Indah Septiani., Rejekiningsih, T., Triyanto, & Rusnaini. (2020). Development of interactive multimedia learning courseware to strengthen students' character. *European Journal of Educational Research*, 9(3), 1267–1279. <https://doi.org/10.12973/eu-jer.9.3.1267>
- Kasanah, A. A. U., Hasan, M. A., & Mala, A. (2024). Efektifitas media pembelajaran interaktif berbasis Adobe Animate CC untuk meningkatkan hasil belajar peserta didik. *Jurnal Riset Madrasah Ibtidaiyah (JURMIA)*, 4(2), 1-9. <https://doi.org/10.32665/jurmia.v4i2.3278>
- Mayer, R. E. (2017). Using Multimedia For e-Learning. *Journal of Computer Assisted Learning*, 33(5), 403–423. <https://doi.org/10.1111/jcal.12197>
- Meliyanti, Wanti, M. M., Putri, N. A., Althaaf, Z. K., & Ertinawati, Y. (2025). Analisis Penggunaan Bahasa Indonesia yang Baik dan Benar dalam Liputan Berita Tribun News. *JIMU: Jurnal Ilmiah Multidisipliner*, 4(1), 176–183. <https://doi.org/10.62383/kajian.v1i4.158>
- Muzdalifah, S. Q., Suryandari, S., & Rahayu, M. (2025). Media Pembelajaran Interaktif Berbasis Articulate Storyline 3 untuk Meningkatkan Motivasi Siswa. *Tarbiyatul Ilmu: Jurnal Kajian Pendiidkan*, 3(5), 40–52.
- Permatasari, O., & Rahmawati, S. (2026). Validitas dan Kelayakan Media Pembelajaran Digital Kartu Truth or Dare Berbantuan Canva pada Pembelajaran Pendidikan Pancasila Kelas IV Sekolah Dasar. *Jurnal Ilmiah Profesi Pendidikan*, 11(2), 1761–1769. <https://doi.org/10.29303/jipp.v11i2.4909>
- Polit, D. F., & Beck, C. T. (2006). The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health*, 29(5), 489–497. <https://doi.org/10.1002/nur.20147>
- Prasetyawati, A. E. (2023). Pengembangan Sistem dan Pelayanan Kearsipan Menuju Tata Kelola Pemerintahan yang Baik di Pemerintah Kabupaten Sleman. *Journal of Indonesian Rural and Regional Government*, 7(1), 49–57. <https://doi.org/10.47431/jirreg.v7i1.315>
- Putriani, I., & Wahyuni, E. D. (2025). Pengembangan Media Pembelajaran dalam Menciptakan Suasana Belajar yang Nyaman untuk Menumbuhkan Kreatifitas Siswa. *Al Midad: Jurnal Ilmu Pendidikan dan Studi Keislaman*, 2(1), 12–21. <https://ejournal.staidhtulungagung.ac.id/index.php/almidad>
- Rajagukguk, R. P., Destrinelli, D., & Rosmalinda, D. (2026). Validitas Media Digital Berbasis Kearifan Lokal Batik Jambi untuk Pembelajaran IPAS Perubahan Wujud Zat Kelas IV. *ELEMENTARY: Jurnal Inovasi Pendidikan Dasar*, 6(2), 287–297. <https://doi.org/10.51878/elementary.v6i2.9525>
- Roemintoyo, R., Miyono, N., Murniati, N. A. N., & Budiarto, M. K. (2022). Optimising the utilisation of computer-based technology through interactive multimedia for entrepreneurship learning. *Cypriot Journal of Educational Sciences*, 17(1), 105–119. <https://doi.org/10.18844/cjes.v17i1.6686>
- Shabrina, A., Putri, R., & Khairi, A. (2025). Pentingnya Pemilihan Media Pembelajaran Yang Tepat Untuk Meningkatkan Hasil Belajar Siswa. *Zaheen: Jurnal Pendidikan Agama dan Budaya*, 1(2), 120–131. <https://jurnalinspirasimodern.com/index.php/Zaheen/article/view/108/121>
- Sundari, S., & Fatonah, K. (2025). Pengembangan Media Flipbook Interaktif dalam Pembelajaran Bahasa Indonesia Materi Teks Prosedur di Sekolah Dasar. *Jurnal Belaindika: Pembelajaran dan Inovasi Pendidikan*, 7(3).

- Suttrisno, S., YULIA, N., & Ibrahim, B. B. (2025). Development of interactive worksheets with artificial intelligence for students based on Bojonegoro local wisdom towards literacy skills of madrasah ibtidaiyah students. *Journal of Elementary Educational Research*, 5(1), 110-134.
- Tri Wulandari & Adam Mudinillah. (2022). Efektivitas Penggunaan Aplikasi CANVA sebagai Media Pembelajaran IPA MI/SD. *Jurnal Riset Madrasah Ibtidaiyah (JURMIA)*, 2(1), 102–118. <https://doi.org/10.32665/jurmia.v2i1.245>
- Ulfah, M. (2025). Instrumen Pengujian Produk Pembelajaran (Pengujian Validitas, Praktikalitas, Efektivitas). *At-Tarbiyah: Jurnal Penelitian dan Pendidikan Agama Islam*, 3(1). <https://doi.org/10.30605/at-tarbiyah.v3i1.466>
- Ulya, D., & Eliza, F. (2026). Pengembangan Media Evaluasi Kuis Interaktif Berbasis Adobe Animate. *Journal of Electrical Vocational Education*, 1(2), 219–230. <https://doi.org/10.24036/jeve.v1i2.58>
- Utari, D. R., & Ramadan, Z. H. (2023). Media Pembelajaran Interaktif Berbasis Articulate Storyline 3 Untuk Siswa SD Kelas IV. *Jurnal Educatio FKIP UNMA*, 9(4), 1810–1817. <https://doi.org/10.31949/educatio.v9i4.6262>
- Wardhayani, Bella Eka., Aisya Almaas, Coirunisa Putri Alifadillah, & Adyana Sunanda. (2025). Evaluasi Kelayakan Penyajian Materi dan Kefrafikan Buku Teks Cerdas Cergas Berbahasa dan Bersastra Indonesia SMA Kelas XI. *Buletin Pengembangan Perangkat Pembelajaran*, 7(2), 282–292. <https://doi.org/10.23917/bppp.v7i2.11538>
- Zahro, S. F. (2025). Uji Validitas Media Pembelajaran Berbasis Video Animasi Menggunakan Aplikasi Doratoon Guna Meningkatkan Pemahaman Peserta Didik. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 10(2). <https://doi.org/10.23969/jp.v10i02.30726>