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Development of Digital Scrapbook Module Teaching Materials as a Science Learning Innovation to Improve Students' Conceptual Understanding

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Abstract: This research and development aims to produce a digital scrapbook module as an innovation in junior high school science teaching materials that is feasible, practical, and effective in improving student understanding. This research is motivated by the results of interviews with junior high school teachers in South Tangerang which showed the limitations of the use of conventional teaching materials so that learning is less interesting and not optimal. The research method used is research and development (R&D) with the ADDIE model which includes the stages of analysis, design, development, implementation, and evaluation. The developed product was validated by two material experts, two media experts, and two teachers as users. The research instruments were in the form of a validation questionnaire and a questionnaire of teacher and student responses that were analyzed using a five-point Likert scale with a value range of ≤1.8 to ≥4.2. The results showed that the material feasibility obtained an average score of 4.6, media feasibility 4.4, and user response 4.6, all of which are in the very good category. Overall, the average score of expert and user assessments reached 4.5 in the very good category. These results indicate that the digital scrapbook module is not only feasible and practical to use, but also has the potential to improve the quality and effectiveness of science learning in junior high schools.

Keywords: ADDIE Model; Digital Scrapbook Module; Junior High School Science Learning; Media Feasibility; Teaching Material Development

Introduction

The world of education presents a challenge for teachers to create effective and practical teaching and learning processes to achieve learning objectives (Nurhikmah et al., 2021; Rachmat et al., 2024). Law No. 20 of 2003 concerning the National Education System explains that learning is a process of interaction between students, teachers, and learning resources in a learning environment (Habe & Ahiruddin, 2017). This implies that the essence of learning is a meaningful interaction between teachers, students, and learning resources in the classroom (Mawardi, 2018). Learning itself is understood as a process of direction to achieve goals and as an action that emerges through learning experiences (Saputro et al., 2025). The primary goal of learning is to create a pleasant atmosphere so that students have high learning motivation (Sitaresmi, 2024; Subedi et al., 2021).

In this context, teaching materials play a crucial role in helping teachers direct learning activities and providing guidance for students throughout the learning process (Anharuddin & Prastowo, 2023; Maula & Fatmawati, 2020). Learning not only focuses on explaining material but also requires teachers to design engaging, effective, and practical activities (Bambang Warsita, 2018; Suwarma et al., 2015). Teachers must be active, creative, and able to utilize advances in Science and Technology (IPTEK) to present digital media that can capture students' attention (Kuntari, 2023; Sari & Munir, 2024). Therefore, developing teaching materials that meet the demands of the digital revolution era is urgently needed to prepare quality human resources

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(Rahmadayanti et al., 2022; Saifudin & Rindanigsih, 2024).

Educational technology has proven to be a solution to various learning challenges (Saputro et al., 2025; Syah, 2024). Digital media not only improves the quality of learning but also facilitates broader interactions between teachers and students (Astuti et al., 2023; Wusqo et al., 2022). The shift from print media to digital teaching materials, such as e-books and interactive modules, provides opportunities for teachers to innovate in designing teaching materials that adapt to students' needs (Fenteng, 2023; Nurhikmah et al., 2021). Several studies confirm that the digital module teaching materials developed have proven to be suitable for use and increase student engagement (Lase & Sudarma, 2023; Michael, 2007; Zaman et al., 2018).

Well-designed modules can encourage students to construct new understandings of the material anytime and anywhere, thereby developing their potential for independent learning (Solichin, 2021; Yana Farawansah & Tarunasena, 2021). Modules can also bridge students' understanding of complex science concepts by linking them to real-life problems (Kusnendar et al., 2024). Furthermore, modules designed with a constructivist approach enable students to actively construct knowledge through meaningful learning experiences (Widarti et al., 2023). Contextualization of the material is also crucial, as the digital scrapbook module has proven valid and practical for use in schools (Setiawan et al., 2017). However, interviews with four seventh-grade junior high school science teachers in South Tangerang revealed that the modules used are still dominated by text with minimal visualization, resulting in low student interest in independent learning.

Based on these problems, the development of a digital scrapbook module is a relevant alternative solution (Rosyada et al., 2025). This module integrates text, images, and other visual elements that can increase student motivation and learning independence (Vebrianto et al., 2023; Wintarti et al., 2021). Research by Wintarti et al. (2019) also shows that the use of a digital scrapbook module can encourage active student involvement in contributing creative ideas. Recent research confirms that digital scrapbooks can enhance student creativity and literacy through an interactive combination of text and visuals. Therefore, this study aims to produce a valid, practical, and effective digital scrapbook module to improve student understanding in junior high school science learning. The research results are expected to contribute to the development of innovative digital teaching materials while supporting the creation of a fun and meaningful learning environment (Gyamfi et al., 2020; Oyinkanola et al., 2023)

Method

This research is a research and development (R&D) study using the ADDIE model, which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation (Suwela et al., 2022). The steps of the Addie model can be seen in Figure 1.

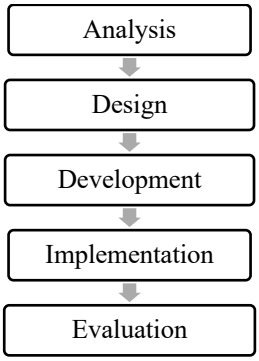

Figure 1. Addie's Model Steps

The ADDIE model was chosen because it allows for repeated evaluation and revision at each stage, ensuring high product validity and systematic implementation. The research was conducted at SMP Negeri 11 South Tangerang and SMP Negeri 6 South Tangerang, Banten Province. The study population was all teachers and seventh-grade students of junior high schools in South Tangerang. The sample was determined using random sampling: four seventh-grade science teachers and 500 students from the two schools. The sample selection was carried out to obtain data relevant to the needs of both teachers and students in teaching the Earth and the Solar System.

Research Procedure

The research procedure refers to the five stages of the ADDIE model:

1. Analysis, conducted to obtain information regarding teachers' potential and challenges when teaching the Earth and the Solar System. Data were obtained through interviews with seventh-grade science teachers at the two schools.
2. Design: The digital scrapbook module was designed, taking into account student needs, including the cover, materials, summaries, formative tests, and prompt questions. The module was designed with an attractive appearance, simple language, and the integration of relevant images, animations, and videos.
3. Development: The digital scrapbook module was created in accordance with the design. The product was validated by six experts: two material experts, two media experts, and two science teachers. Validation was conducted to assess the content,

language, presentation, and the material's suitability for core competencies.

4. Implementation: The revised module was implemented in seventh-grade science lessons. At this stage, students used the module during their learning process and were then asked to complete a questionnaire to assess the product's practicality and usability.
5. Evaluation: Formative evaluation was conducted at each stage, as well as a summative evaluation after implementation. Data was obtained through student questionnaires, teacher interviews, and field notes. The evaluation results served as the basis for final revisions to make the digital scrapbook module more feasible and effective.

Data Collecction Instruments and Techniques

The research instruments used consisted of validation questionnaires for subject matter experts and media experts, student and teacher response questionnaires, and learning outcome tests in the form of pre- and post-tests on the Earth and Solar System topic. The expert validation questionnaire was used to assess the appropriateness of the content, presentation, language, and display of the digital scrapbook module. Student and teacher response questionnaires were used to assess the practicality and acceptability of the product. Meanwhile, the learning outcome test was used to measure improvements in students' conceptual understanding after using the module (Lasmini et al., 2022).

The data collection technique involved several stages. First, interviews with teachers were conducted at the initial stage to obtain information on the need for teaching materials related to the Earth and Solar System topic. Second, expert validation was conducted by providing the module to subject matter experts and media experts. The subject matter expert validation aimed to ensure the module's content aligned with the competencies being taught, with assessment aspects including material accuracy, presentation, language, and readability. The media expert validation assessed the module's technical aspects, including physical design, use of images, text, color, audio, animation, and overall display quality. Validators were selected based on their competence and experience in their respective fields. Furthermore, user validation was carried out by two science teachers with a minimum of five years of teaching experience to assess the suitability of the module for use in learning and provide suggestions for improvement. After that, student and teacher response questionnaires were distributed to determine the level of practicality and acceptability of the digital scrapbook module in learning. Finally, the implementation of learning outcomes tests through pretests and posttests is given to students to determine the effectiveness of the module in increasing understanding of Earth and Solar System material (Shopiyana & Rosnija, 2021).

Data Analysis Techniques

Validation data were analyzed using quantitative descriptive techniques by calculating the average score and categorizing them based on eligibility criteria (≤1.8 = very good, 1.9–2.6 = good, 2.7–3.4 = sufficient, 3.5–4.1 = good, ≥4.2 = very good) (Emzir, 2013).Student and teacher response data were analyzed using percentages, while learning outcomes were analyzed using the normalized gain test (N-Gain) to see the increase in student understanding after using the digital scrapbook module.

Result and Discussion

Validity Test Result

Based on the research conducted on the development of digital scrapbook module teaching materials for the Earth and Solar System topic, the product was validated by media experts, material experts, and users. The media and material expert validation was conducted by two experts in South Tangerang, while the user validation involved 50 seventh-grade students and two teachers at a junior high school in South Tangerang. The purpose of this validation activity was to measure the feasibility and practicality of the digital scrapbook module before its wider use. This finding is consistent with recent studies emphasizing that validation by both material and media experts is a crucial step in ensuring the quality and usability of digital learning modules before large-scale implementation (Lase & Sudarma, 2023; Saifudin & Rindanigsih, 2024). The following are the results of the product development to meet the practicality and feasibility requirements according to the experts:

Material Expert Validation

Material validation was conducted to validate the product in terms of learning quality and material quality components. Material validation was conducted by two validators who have taught at the school. If the material validation results cannot be declared suitable for use, the product must be revised until it is usable. Material feasibility validation was conducted in South Tangerang. In general, the results obtained from the assessment by the two material experts are as follows.

Table 1. Material Expert Validation Result

Aspect	Validator I	Validator II	Average Score	Classification
Material Suitability and Accuracy	4.7	4.1	4.4	Very Good
Presentation of Digital Modules	4.5	3.5	4	Very Good
Modules are tailored to student characteristics	5	4.5	4.8	Very Good
Use of digital scrapbook modules	4	3.5	3.8	Good
Average			4.2	Good

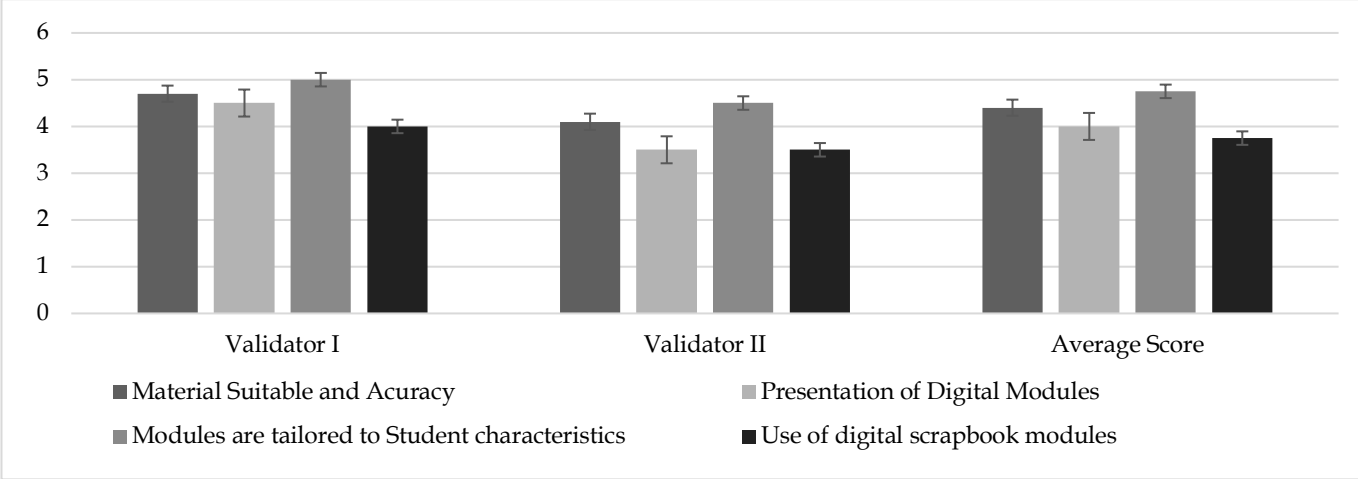

Figure 1. Subject Matter Expert Validation Test Graph

Based on Table 1 and Figure 1, the material expert validation results show that the suitability and accuracy of the material achieved an average score of 4.4 (very good), the presentation of the digital module scored 4.0 (very good), the alignment of the module with student characteristics scored 4.8 (very good), and the constructivist-based use of the digital scrapbook module scored 3.8 (good). The overall average score from material experts was 4.2, categorized as good.

These findings align with previous research which states that digital modules that are aligned with curriculum objectives, student cognitive development, and constructivist learning principles tend to receive high feasibility scores from content experts (Kusnendar et al., 2024; Widarti et al., 2023). The strong score on alignment with student characteristics supports Piaget's theory that learners at the early formal operational stage require contextual, visual, and interactive learning resources to facilitate abstract concept understanding (Saputro et al., 2025).

Furthermore, similar studies on science digital modules report that constructivist-oriented content presentation significantly enhances conceptual clarity and learner engagement, even if initial implementation requires gradual adaptation by teachers and students (Astuti et al., 2023; Nurhikmah et al., 2021). Therefore, the "good" category achieved in the constructivist usage aspect indicates a solid foundation for further refinement during implementation and evaluation stages.

Media Expert Validation

Similar to the material validation, the validators for the media validation also consist of two teachers who have taught at the school. If the media validation results cannot be declared suitable for use, the product must be revised until it is usable. The media experts are the validators selected to assess the graphical and presentation aspects of the developed module. The media feasibility validation was conducted in South Tangerang. In general, the results obtained from the assessment by the two material experts are as follows.

Table 2. Media Expert Validation Results

Aspect	Validator I	Validator II	Average Score	Classification
Physical Media	4.7	4.5	4.6	Very Good
Use of Images, Animation, and Video	4.7	4.3	4.5	Very Good
Use of Text	4.7	4.7	4.7	Very Good
Supporting Media Components	4.5	4.8	4.7	Very Good
Digital Scrapbook Quality	4.8	4.3	4.6	Very Good
Average			4.6	Very Good

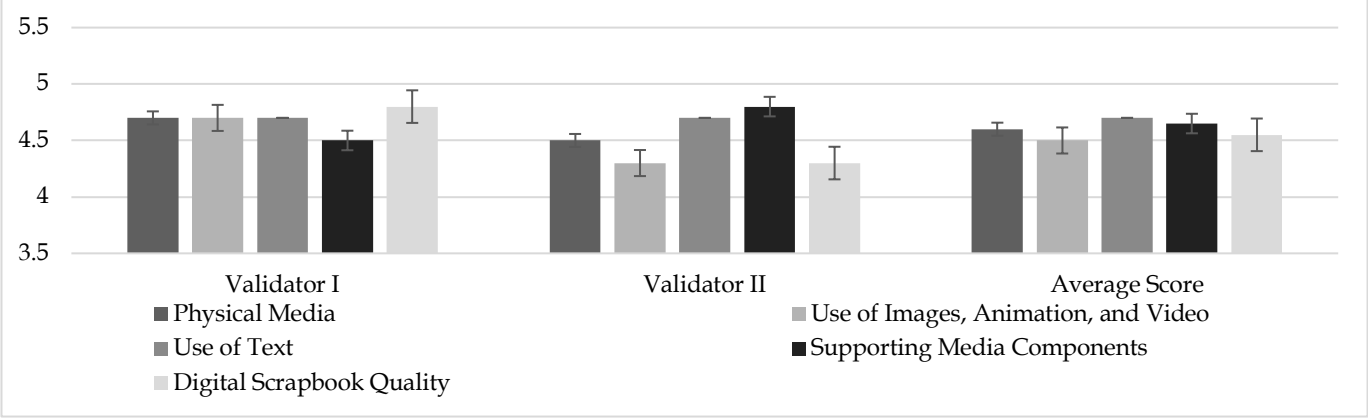

Figure 2. Media Expert Validation Test Graph

Based on the conversion table and graph presented, the average score given by the two media experts for the graphical feasibility of the digital scrapbook module is categorized as very good, with a score of 4.6. This assessment covered various aspects with average scores, including the physical aspect of the media, which received a score of 4.6 (very good criteria), the use of images, animation, and video with a score of 4.5 (very good criteria), the use of text with a score of 4.7 (very good criteria), the completeness of supporting media components with a score of 4.7 (very good criteria), and the quality of the digital scrapbook presentation with a score of 4.6 (very good criteria).

These results corroborate recent findings which emphasize that visually rich digital learning media significantly improve students' attention, motivation, and comprehension, particularly in science subjects that involve abstract and spatial concepts such as astronomy (Aina & Aina, 2023; Vebrianto et al., 2023). Research conducted by Oyinkanola et al. (2023) also confirms that multimedia integration combining images, animations, and instructional videos enhances meaningful learning and supports long-term knowledge retention.

Moreover, the high media feasibility score is consistent with studies on digital scrapbook-based learning, which indicate that scrapbook formats encourage creativity, interactivity, and learner-centered engagement due to their non-linear and visually appealing structure (Rosyada et al., 2025; Wintarti et al., 2019). Thus, the media validation results suggest that the developed module fulfills both aesthetic and pedagogical criteria for effective digital teaching materials.

This research adopted the ADDIE development model, focusing on the analysis, design, and development stages. The implementation and evaluation stages are planned for subsequent research. This approach aligns with current educational design research practices, which emphasize formative validation prior to field testing to ensure product quality and relevance (Gyamfi et al., 2020).

The digital scrapbook module was intentionally designed to address the learning characteristics of seventh-grade students by incorporating colorful layouts, contextual images, animations, instructional videos, student worksheets (LKPD), and interactive quizzes. Similar design strategies have been reported to increase learning motivation, engagement, and critical thinking skills in digital science learning environments (Lase & Sudarma, 2023; Zakaria, 2022).

The inclusion of interactive components also supports self-regulated learning, which is a key competency in 21st-century education. Recent studies indicate that digital modules that provide immediate feedback through quizzes and exercises help students monitor their understanding and promote independent learning behaviors (Rahmawati et al., 2022).

The combined assessment results from material experts (4.2), media experts (4.6), and users demonstrate that the digital scrapbook module meets the eligibility criteria in terms of content accuracy, instructional design, and media quality. These findings are consistent with previous research reporting that digital science modules validated above a score of 4.0 on a five-point Likert scale are considered feasible and suitable for classroom use (Setiawan et al., 2017).

Overall, this study contributes positively to the development of digital learning innovations by providing empirical evidence that digital scrapbook modules can function not only as content delivery tools but also as interactive learning media that support constructivist learning processes. With further implementation and evaluation, the module has strong potential to improve students' conceptual understanding, critical thinking skills, and learning motivation in Earth and Solar System learning (Astuti et al., 2023; Oyinkanola et al., 2023).

Figure 3 below is the result of developing a digital scrapbook module on the earth and solar system.

(a) (b) (c)

Figure 3. (a) The cover page consists of the title, picture, name and curriculum, (b) The Introduction section contains a brief description of the material on the earth and the solar system and is equipped with pictures, animations and music and (c) The Learning Activities section contains indicators, learning activities and student worksheets.

Validator Data Recapitulation Results

The recapitulation of validation results presented in Table 3 shows a total score of 26.8, with an average score of 4.5 on a five-point scale, categorized as very good. This overall validation score confirms that the digital scrapbook module is valid and feasible for use as a digital teaching material.

These results are in line with recent studies indicating that digital learning products achieving an average validation score above 4.2 are considered highly feasible and ready for further implementation stages (Rosyada et al., 2025; Saifudin & Rindanigsih, 2024). Therefore, the digital scrapbook module developed in this study can be confidently advanced to implementation and effectiveness testing in future research.

Table 3. Recapitulation of Validation Results by Media Experts, Material Experts and Users

Expert	Validator	Validation Results	
		Score	Criteria
Material	I	4.6	Very Good
	II	3.9	Good
Media	I	4.7	Very Good
	II	4.5	Very Good
Users	I	4.7	Very Good
	II	4.4	Very Good
Total Score		26.8	
Average = ∑score/∑validator		26.8/6 = 4.5	26.8

Conclusion

Based on research on the development of a constructivist-based digital science scrapbook module for seventh-grade junior high school students using the ADDIE model, the module was concluded to be suitable for use, as indicated by validation results showing an average score of 4.2 from material experts (good category), 4.6 from media experts (very good category), and 4.6 from users, resulting in an overall average score of 4.5 in the very good category; these findings demonstrate that the digital scrapbook module is feasible and practical for improving students' conceptual understanding of Earth and the solar system in South Tangerang, while also serving as an innovative learning medium that supports active student involvement, enhances critical thinking skills, creativity, and independent learning in the digital era, although the study is still limited to the validation and small-scale pilot phase, so further research is recommended to implement the module on a larger classroom scale, evaluate its effectiveness across cognitive, affective, and psychomotor learning outcomes, and explore its integration with online learning platforms (Learning Management Systems) to support distance and blended learning.

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Author Contributions

Muhamad Sangaji contributed to the conceptualization and methodology of the study; Fitri Damayanti contributed to the design of the expert validity sources; Acep Musliman contributed to the writing and review of the study; Hasbullah contributed to the editing and acquisition of the research grant; Andri Suryana contributed to the supervision of the implementation of the study. All authors have read and approved the published manuscript.

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Conflicts of Interest

The author declares that there is no conflict in this publication.

References

Aina, S. A. O., & Aina, M. A. O. (2023). Rethinking the Use of Classroom Cases: Leveraging Generative and Multimedia Principles for Meaningful Preservice Teacher Learning. *Creative Education*, *14*(05), 972–992. https://doi.org/10.4236/ce.2023.145062

Anharuddin, M. `Izza M., & Prastowo, A. (2023). Pengembangan Bahan Ajar Tematik Dengan Media Pembelajaran Lectora Inspire. *Al-Madrasah: Jurnal Pendidikan Madrasah Ibtidaiyah*, *7*(1), 94. https://doi.org/10.35931/am.v7i1.1467

Astuti, I. A. D., Nursetyo, K. I., Hanavi, I., & Susanto, T. T. D. (2023). Navigation Physics : Journal of Physics Education Penggunaan Teknologi Digital dalam Pembelajaran IPA : Study Literature Review.

Navigation Physics : Journal of Physics Education, *5*(1), 34–43.

Bambang Warsita. (2018). Teori Belajar Robert M. Gagne Dan Implikasinya Pada Pentingnya Pusat Sumber Belajar. *Jurnal Teknodik*, *XII*(1), 064–078.

Emzir. (2013). *No Title* (p. 336). Rajawali Pers.

Fenteng, A. (2023). Online Learning: A Cognitive Tool for Learning, an Alternative to Traditional Learning Style. *Psychology*, *14*(05), 676–686. https://doi.org/10.4236/psych.2023.145036

Gyamfi, T. A., Nana-Addy, E., & Asiedu, W. G. (2020). Motivational Strategies to Improve Artisan's Productivity in the Construction Industry in Ghana. *Journal of Building Construction and Planning Research*, *08*(04), 285–301. https://doi.org/10.4236/jbcpr.2020.84019

Habe, H., & Ahiruddin, A. (2017). Sistem Pendidikan Nasional. *Ekombis Sains: Jurnal Ekonomi, Keuangan Dan Bisnis*, *2*(1), 39–45. https://doi.org/10.24967/ekombis.v2i1.48

Kuntari, S. (2023). Pemanfaatan Media Digital dalam Pembelajaran. *Prosiding Seminar Nasional Fakultas Tarbiyah Dan Ilmu Keguruan IAIM Sinjai*, *2*, 90–94. https://doi.org/10.47435/sentikjar.v2i0.1826

Kusnendar, J., Darmawan, D., & Rusman. (2024). Inovasi Kurikulum Dalam. *Inovasi Kurikulum*, *21 Nomor 3*(2), 819–834.

Lase, K. S., & Sudarma, I. K. (2023). Interactive E-Module Based on Scientific Approach in Science Content Learning for Sixth-Grade Students. *MIMBAR PGSD Undiksha*, *11*(2), 175–183. https://doi.org/10.23887/jjpgsd.v11i2.64508

Lasmini, K. M., Suarni, N. K., & Widiana, I. W. (2022). Scrapbook as Based Digital Books on Literacy in Third GradeElementary School Students. *Journal for Lesson and Learning Studies*, *5*(2), 259–266.

Maula, N. R., & Fatmawati, L. (2020). Pengembangan Media Pembelajaran Kayaku (Kayanya Alam Negeriku) Berbasis STEM Kelas IV Sekolah Dasar. *Jurnal Ilmiah Sekolah Dasar*, *4*(1), 97. https://doi.org/10.23887/jisd.v4i1.22351

Mawardi, M. (2018). *Merancang Model dan Media Pembelajaran Mawardi*. 26–40.

Michael, M. (2007). Should we have a Universal Model for HPT. *Performance Improvement*, *46*(9), 9–16. https://doi.org/10.1002/pfi

Nurhikmah, Hakim, A., & Wahid, M. S. (2021). Interactive E-Module Development in Multimedia Learning. *AL-ISHLAH: Jurnal Pendidikan*, *13*(3), 2293–2300. https://doi.org/10.35445/alishlah.v13i3.863

Oyinkanola, L. O. A., Aremu, O. A., Fajemiroye, J. A., & Makinde, S. O. (2023). *On the physical significance and di-electric response of Castor oil processed in Nigeria as transformer insulating fluid*. *VIII*(2454), 60–66. https://doi.org/10.51584/IJRIAS

Rachmat, R. M., Sarkhosyi, M., Sidik, R., Abdul, H., Hamdi, A., & Subkhan, M. (2024). *Educatus : Jurnal Pendidikan Perubahan Pendidikan : Dampaknya*. *2*(3), 31–37.

Rahmadayanti et al., D. (2022). Potret Kurikulum Merdeka. *Jurnal Basicedu*, *6*(4), 7174–7187.

Rahmawati, N. I., Ikashaum, F., Wahyuni, S., & Cahyo, E. D. (2022). Pendampingan Pembuatan Media Pembelajaran Interaktif Ispring Presenter Berbasis HTML 5. *Society : Jurnal Pengabdian Masyarakat*, *1*(2), 59–64. https://doi.org/10.55824/jpm.v1i2.75

Rosyada, A., Saputra, A. D., & Syarifuddin, A. (2025). *DEVELOPMENT OF DIGITAL SCRAPBOOK LEARNING MEDIA IN SCIENCE*. *06*(01), 83–97.

Saifudin, M., & Rindanigsih, I. (2024). Transformation of Human Resource Management in Education in the Digital Era. *International Journal Multidisciplinary (IJMI)*, *1*(1), 47–53. https://doi.org/10.61796/ijmi.v1i1.42

Saputro, J. I., Sa'adah, L. F., Syifa, Y., Ramadhanti, K. D., & Gojali, M. F. (2025). Transforming Learning Experiences With Advanced Educational T echnology Solutions. *International Transactions on Education Technology (ITEE)*, *3*(2), 114–124. https://doi.org/10.33050/itee.v3i2.721

Sari, A. P., & Munir, M. (2024). Pemanfaatan Teknologi Digital dalam Inovasi Pembelajaran untuk Meningkatkan Efektivitas Kegiatan di Kelas. *Digital Transformation Technology*, *4*(2), 977–983. https://doi.org/10.47709/digitech.v4i2.5127

Setiawan, B., Innatesari, D. K., Sabtiawan, W. B., & Sudarmin, S. (2017). The development of local wisdom-based natural science module to improve science literation of students. *Jurnal Pendidikan IPA Indonesia*, *6*(1), 49–54. https://doi.org/10.15294/jpii.v6i1.9595

Shopiyana, D. D., & Rosnija, E. (2021). Scrapbook to Introduce Alphabet : A Development Research For Preschool Learners. *Celtic : A Journal of Culture, English Language Teaching, Literature and Linguistics*, *8*(1), 103–111. https://doi.org/10.22219/celtic.v8i1.14421

Sitaresmi, P. D. W. (2024). Panggilan Aksi Untuk Pendidik, Pemerintah, Dan Industri. In *Inovasi Pembelajaran Dan Pendidikan*.

Solichin, M. M. (2021). Paradigma Konstruktivisme Dalam Belajar Dan Pembelajaran. In *Duta Media Publishing*.

Subedi, K. R., Aryal, B., & Adhikari, A. (2021). Question on Questioning Skill of Health Educators in Nepal. *Creative Education*, *12*(02), 391–401. https://doi.org/10.4236/ce.2021.122028

Suwarma, I. R., Astuti, P., & Endah, E. N. (2015). "Balloon Powered Car" Sebagai Media Pembelajaran Ipa Berbasis Stem (Science , Technology , Engineering , and Mathematics).

Prosiding Simposium Nasional Inovasi Dan Pembelajaran Sains 2015, *2015*(Snips), 373.

Suwela, I. G. W., Suma, K., & Parmiti, D. P. (2022). Scrapbook Digital: Konstruksi Media Pembelajaran Bermuatan Soal-Soal Higher Order Thinking Skills. *Jurnal Edutech Undiksha*, *10*(1), 11–20.

Syah, M. B. (2024). *Pendidikan dan Kependidikan, Jurnal*. *9*(2), 52–57.

Vebrianto, R., Efendi, S., & Radeswandri, R. (2023). Scrapbook Digital: Media Pengajaran Dan Penilaian Berkualitas. *Edupedia*, *7*(1), 76–86. https://doi.org/10.24269/ed.v7i1.1937

Widarti, H. R., Habiddin, H., Parlan, P., Setiawan, N. C. E., Rokhim, D. A., Maharani, R. N., Peni, R., Wahyudi, A., Wahyudi, B., Arif, S., & Pratiwi, J. K. (2023). Training on the Development of Constructivist-Based Teaching Modules for Educational Practitioners at SMAN 3 Sidoarjo. *Journal of Community Practice and Social Welfare*, *3*(2), 37–47. https://doi.org/10.33479/jacips.2023.3.2.37-47

Wintarti, A., Abadi, & Fardah, D. K. (2019). The Instructional Design of Blended Learning on Differential Calculus Using Successive Approximation Model. *Journal of Physics: Conference Series*, *1417*(1). https://doi.org/10.1088/1742-6596/1417/1/012064

Wintarti, A., Artiono, R., & Prawoto, B. P. (2021). Pengembangan Bahan Ajar Berbasis Blended Learning Pada Mata Kuliah Dasar-Dasar Matematika. *Jurnal Penelitian Pendidikan Matematika Dan Sains*, *3*(2), 46. https://doi.org/10.26740/jppms.v3n2.p46-54

Wusqo, I. U., Jatiningsih, N. A. L. B., & Supinah. (2022). The Effect of Science Digital Scrapbook Based on the Universal Design for Learning (UDL) on Students'. *Proceedings of the 5th International Conference on Current Issues in Education (ICCIE 2021)*, *640*(Iccie 2021), 394–398. https://doi.org/10.2991/assehr.k.220129.072

Yana Farawansah, V., & Tarunasena. (2021). E-Modul BerbasisAndroit Dalam Mendukung Aktifitas Belajar Mandiri Peserta Didik E-Modul Berbasis Androit Dalam Mendukung Aktivitas Belajar Mandiri Peserta Didik. *FACTUM; Jurnal Sejarah Dan Pendidikan Sejarah*, *11*(1), 29–34.

Zakaria, D. & A. H. (2022). Pengembangan Blended Problem-Based Learning (Bpbl) Sebagai Penunjang Aktivitas Pembelajaran Matematika Di Perguruan Tinggi. *Didaktika : Jurnal Kependidikan*, *15*(2), 130–147. https://doi.org/10.30863/didaktika.v15i2.3569

Zaman, I. K., Majid, R. A., Ali, M. M., & Zainol, M. (2018). Development of VLE Frog Website on Pre-Number Topic for Students with Learning Disability. *Creative Education*, *09*(14), 2224–2233. https://doi.org/10.4236/ce.2018.914163