RESEARCH ARTICLE
published: 28 February 2026
doi:10.21070/pedagogia.v15i1.2113

Development of Computer-Based E-Modules Using Flip Builder as a learning Resource in Social Studies Learning

Erika Putri[1], Sudrajat[2], Danu Eko Agustinova[3]*

Faculty of Social Science, Law, and Political Science, Universitas Negeri Yogyakarta, Yogyakarta,

The rapid development of information and communication technology and post-pandemic digital transformation have increased the demand for adaptive learning resources in Social Studies education. At SMP Negeri 1 Karangmojo, learning practices remained teacher-centered and dependent on textbooks despite available digital infrastructure, revealing limited integration of technology-based materials. This study aims to develop a computer-based e-module assisted by Flip Builder and to examine its feasibility using a Research and Development approach with the ADDIE model. Validation results showed Very Good categories from material experts (4.3), media experts (4.83), teacher readability tests (4.57), and student responses (4.68), indicating that the e-module meets eligibility standards. The developed e-module offers a systematically designed digital learning resource aligned with post-pandemic and 21st-century learning needs and can serve as an alternative resource to support student-centered and independent learning in junior high school Social Studies.

Keywords: e-module, flip builder, social studies, learning resources, ADDIE

OPEN ACCESS

ISSN 2548 2254 (online)
ISSN 2089 3833 (print)

Edited by:
Cahyo Hasanudin

Reviewed by:
Panut Setiono
Deni Adi Putra

**Correspondence:*
Erika Putri
erikaputri.2024@student.uny.ac.id

Received: 02 January 2026
Accepted: 26 January 2026
Published: 28 February 2026

Citation:
Erika Putri, Sudrajat, Danu Eko Agustinova (2026) Development of Computer-Based E-Modules Using Flip Builder as a learning Resource in Social Studies Learning. Pedagogia: Jurnal Pendidikan. 15:1.doi: 10.21070/pedagogia.v15i1.2113

INTRODUCTION

Technological developments in addition to providing convenience and many benefits (Sussandi et al., 2025).The development of information and communication technology has also brought significant changes in the field of education (Huraerah et.al, 2023), particularly in the provision and use of learning resources (Subagio & Limbong, 2023). The digital transformation in learning has accelerated since Covid-19 pandemic, which forced educational institutions to implement distance learning and minimize face-to-face interactions (Astriani & Marzuki, 2021). This situation requires educators to be able to provide learning resources that are flexible, easily accessible, and support students independent learning (Sanjaya, 2022). A number of previous studies have shown that the availability of appropriate digital learning resources plays an important role in improving the effectivenes of learning in the digital age (Sulistyowati & Asriati, 2024).

The Covid-19 pandemic has revealed various problem in the implementation of learning, one of which is the limitation of teaching materials suitable for technology-based learning (Sucipto, 2024). Many teachers still rely on printed books or conventional teaching materials (Rosmalah et.al, 2025) that are less adaptive to online or blended learning. This finding is in line with the results as of previous studies which confirmed that conventional teaching materials have not been fully able to support digital learning optimally (Yuniarti et al., 2023). As a result, the learning process becomes less optimal, especially in encouraging active participation and conceptual understanding by students.

In Social Science course, the problem becomes increasingly complex because Social Science contains social concepts that are abstract (Jaenudin, 2014), contextual, and dynamic. Social Science learning requires students to understand social phenomena through various visual and contextual representations (Khasanah et.al, 2019). However, the limited digital learning resources during the pandemic caused Social Science learning to tend to be one-way and teacher-centered, and less enganging (Gerso et.al, 2024), resulting in low student learning motivation. In addition, learning became boring and monotonous (Fentyrina & Mardi, 2025). This condition shows the gap between the learning needs of social studies and the availability of adaptive digital learning resources.

Practical learning during the Covid-19 pandemic with an online system not an easy thing in carrying out the teaching and learning process (Auliana et al., 2024). One alternative solution to address the challenges of digital information technology development and the post-Covid-19 pandemic is the development of e-modules as on of the digital learning resources (Inanna et.al, 2021). Various previous studies have revealed that e-modules allow students to learn independently anywhere and anytime, support student-centered learning (Idayanti & Suleman, 2024). In addition, e-modules that integrate various multimedia elements are proven to increase learning interest and understanding of concepts (Alivia et.al, 2023). However, the development of e-modules specifically designed for social studies learning is still relatively limited. Therefore, with technological developments, teachers are required to follow these advances and integrate the appropriately in the learning process (Almira, 2025).

The development of computer-based e-modules with help of the Flip Builder application becomes a fairly relevant choice beacuse it can present learning modules in the form of interactive digital books (Ratnawati et al., 20204). Flip builder allows the integration of text, images, audio, video, and animation into one systematic and engaging display (Flip Builder, 2025). The novelty of this study lies in the development of Flip Builder-based IPS e-modules designed to answer the needs of contextual and adaptive learning to post-pandemic digital learning. With these characteristic, the e-modules being develop are expected to become effective learning resources, both in online learning, limited offline learning, and post-pandemic face-to-face learning.

Based on this explanation, this study aims to develop computer-based e-modules assisted by Flip Builder as a learning resource in social studies education and to test their feasibility. The results of this research are expected to contribute to the devopment of innovative digital learning resources that are relevant to post-Covid-19 learning needs and amidst the current advancement of digital information technology.

METHODS

The method used in this study is development research (Research & Development) which investigates, designs, produces, and tests the validity of a product based on the research results (Sugiyono, 2019). The ADDIE develpment model, which includes five stages: Analysis, Design, Development, Implementation, and Evaluation (Branch, 2009). This model was chosen because it is systematic in accordance with the steps (Hidayat & Nizar, 2021), flexible, and suitable for developing digital-based teaching modules. This research model has become used in instructional development (Zamsiswaya et.al, 2024). Each stage in the ADDIE model is very important to ensure the learning process runs effectively and efficiently (Gustiani, 2019). In addition, this development model provides a clear structure for teachers and curriculum developers to design and evaluate existing learning programs (Richey & Klein, 2007).

Implementation of the ADDIE model in this study was done gradually and systematically. The analysis phase in carried out through the analysis of learning needs, characteristics of learners, material presentation strategies, and designs that will be used in SMP N 1 Karangmojo. At the design stage, the researchers developed a plan for the development of learning resources in the form of e-modules that can make it easier for readers to be more motivated and able to conduct independent learning. The E-Module design includes setting learning goals, preparing material structure, designing learning activities, and determining media formats and assessment instruments. Furthermore, the development

stage is carried out by developing a computer-based e-module using the Flip Builder application in accordance with the design that has been prepared, as well as performing product validation by material experts and media experts to obtain improvement input. The implementation phase was carried out by conducting e-module trials to teachers and students at SMP N 1 Karangmojo, to determine the level of readability, ease of Use, and user response to the E-module developed. The final stage, namely evaluation, is done by analyzing the results of expert validation and user responses thoroughly to assess the feasibility of the e-module and make the final revision based on the results of the evaluation. The assessment is carried out using a Likert scale with certain criteria, which are then analyzed in a descriptive quantitative manner to determine the level of feasibility of the product. Eligibility criteria are set based on Score categories that indicate the level of validity and eligibility of e-modules as a learning resource. The E-module must obtain a minimum value of $2.6 < X < 3.4$ with the criterion of "sufficient".

FINDINGS AND DISCUSSION

[Figure 1. about here]

Figure 1 shows the data results that at SMP N 1 Karangmojo, face-to-face activities have already taken place, with teacher-centered learning. The media used include PowerPoint and a projector. After conducting in-depth interviews with the social studies teacher and the principal, SMP N 1 Karangmojo has fasilities such as computers, projectors, LCDs, and sufficient Wi-Fi to conduct learning by utilizing digital technology. However, the learning resources at the school still refer to textbooks, occasionally using Google Classroom and WhatsApp Groups as media to distribute learning materials for independent study. Pedagogically, this condition shows that digital transformation in schools is still in the infrastructure provision stage, but does not yet fully cover the aspects of learning design and the use of digital learning resources. Social studies learning is still dominated by the process of knowledge transmission from teachers to students (teacher-centered), so that the potential of technology has not been optimally utilized in encouraging active, contextual, and independent learning.

Next, the development of a computer-based e-module assisted by Flip Builder is carried out using the R&D method and the ADDIE development model. The development of this e-module includes 5 stages: Analysis, Design, Development, Implementation, and Evaluation. In the analysis stage, data is collected through observation and interview at SMP N 1 Karangmojo to determine the initial needs for module development and design. This is then analyzed, and the second stage Design, is carried out by creating the initial e-module design, which is then submitted to content and media experts. After receiving assessments and feedback from content and media experts, revisions are made, and readability test is conducted with the social studies teacher. Next, in the third stage, Development, the e-module is developed according to the input from the experts until it is ready to be tested with the students. In the fourth stage, Implementation involves testing with 55 eighth-grade students at SMP N 1 Karangmojo. The implementation of the ADDIE model in this study demonstrates that the development of the e-module is not only instantaneous but also through a reflective and repetitive process. This is in line with the principles of modern leanring design, which emphasizes the importance of appropriate learning needs, characteristics of learning, and learning media design.

[Figure 2. about here]

In the Implementation stage, in addition to conducting trials, data on student responses are also collected to improve the product. In the Evaluation stage, product improvements are made, resulting in the final e-module. In the evaluation stage, not only as a technical process of product revision, but also to ensure that the e-module is able to facilitate learning IPS more meaningfully, interactively, and oriented to the understanding of the concept.

[Table 1. about here]

Table 1 shows the results from the context experts on the feasibility of the material, obtaining a total score of 21.5 with an average score of 4.3, which falls into the Very Good category. This indicates that the material presented in the e-module aligns with the objectives of social studies learning, is relevant to the expected competencies, and is systematically organized. For language feasibility, a score of 21.5 was obtained, also in the Very Good category. This indicates that the language used is clear, communicative, and appropriate for the characteristics of the students. There were suggestions from the content experts regarding improvements in learning activities, answer keys, scoring, and recommendations. This result has pedagogical implications, as the e-module has met the principles of social studies learning that emphasize the linkage of goals, materials, and learning activities. The provision of systematic material supports the conceptual process of learners in understanding social phenomena that are abstract and complex. Next, validation was carried out by media experts, with the data as follows:

[Table 2. about here]

Table 2 shows the results from media experts on the e-module cover design, which received a total score of 9 with an average score 4.5, falling into the Very Good category. The cover of the develop e-module is able to provide visual appeal to users. Furthermore, the language indicator received a total score of 20 with an average score of 4.5, also categorized as Very Good. This indicates that the language used is appropriate, clear, suitable, and highly readable. The typo indicator received a score of 15 with an average score of 5, categorized as Very Good. This shows that the size, color, and type of font are appropriate. The illustration indicator received a total score of 10 with an average score of 5, categorized as Very Good. This indicates that the use of images is clear and easy to understand. The layout indicator received a total score of 4 with an average score of 4, categorized as Good. This

shows proper placement of images, videos, and audio in the module. There was input from media experts regarding the table of contents and the icons used. From the perspective of multimedia learning theory, these results indicate that the E-module design meets the principles of visual clarity and information integration, which play an important role in reducing the cognitive load of learners and increasing the effectiveness of information entry. Based on this input, revisions were made and then a readability test was conducted by the social studies teachers at SMP N 1 Karangmojo with the following data:

[Table 3. about here]

Table 3 shows the data from the readability test conducted by social studies teachers on the feasibility of the material, which received a total score of 32 with an average score of 4.57, categorized as Very Good. The presented material is already in accordance with the Core Competencies (KI), Basic Competencies (KD), Achievement Indicators, is sequential, and can expand student knowledge. For the language feasibility indicator, it received a total score of 17 with an average score 4.25, categorized as Very Good. This indicates that the language in the e-modules is appropriate, uses correct terminology, is clear, and has good readability. For the design indicator it received a total score of 9 with an average score of 4.5, categorized as Very Good. For the illustration indicator, it received a total score of 15 with an average score of 5, categorized as Very Good, showing that images used are appropriate, clear, easy to understand, and consistent in the e-module. This finding reinforces the role of the e-module as an independent learning resource, because high readability allows learners to manage their own learning process without full dependence on the teacher's explanation. This is in line with the concept of self-directed learning. Furthermore, a student trial was conducted based on input from material and media experts, as well as social studies teachers. The data obtained are as follows:

[Table 4. about here]

Table 4 shows the results of the response analysis from 55 eight-grade students at SMP N 1 Karangmojo. For the material feasibility indicator, it received a total score of 18.73 with an average score of 4.68, categorized as Very Good. This indicates that the material presented in the e-module can facilitate understanding, motivate, increase knowledge, and enhance student interest in reading. For the language feasibility indicator, it received a total score of 9.27 with an average score of 4.64, categorized as Very Good. The language used in the e-module is appropriate and suitable. For the illustration feasibility indicator, it received a total score of 9.4 with an average score 4.7, categorized as Very Good. The images presented in the e-module are clear and easy to understand. For the design feasibility indicator, it received a total score of 9.51 with an average score of 4.76, categorized as Very Good. This indicates that the design of the e-module, particularly the cover, is attractive and aligns with the content. For the typo feasibility indicator, it received a total score of 13.99 with an average score of 4.66, categorized as Very Good. The typo in the e-module regarding the use of size, color, and font type have been corrected. Learners' responses show that the e-modules are not only technically acceptable but have an impact on learning engagement as well. This is an important prerequisite for social studies learning that requires a critical understanding of the social phenomena that exist around us. Therefore, the final stage, which is evaluation, is carried out by revising the product based on feedback from experts, subject teachers, and students.

The e-module developed based on computer-assisted Flip Builder application can already be considered feasible because the material experts gave a Very Good (4.3), media experts gave a Very Good (4.83), subject teachers gave a Very Good (4.57) in the readability test, and students responses were Very Good (4.68). Therefore, the feedback received is used to finalize the e-module product so that it can be used by the general public. Reflectively, the success of this e-module shows the potential of changing social studies learning practices from teacher-centered to student-centered learning, with e-modules as a variety of learning resources that support contextual independent learning, and sustainable in the digital era.

CONCLUSIONS

This study produces a product in the form of computer-based e-module assisted by Flip Builder application as a source of learning social studies subjects. E-module development using Research and Development (R & D) with the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). Based on the results of validation and trials, the e-module is classified as very suitable for use as a learning resource for IPS. The assessment by the content expert showed an average score of 4.3, by the media expert an average score of 4.83, the readability test by the IPS score of 4.57, and the students ' responses were rated as very good (4.68), all in the category of very good. This result shows that the E-module developed meets the feasibility aspect. In practical terms, the electronic modules developed provide teachers with alternative digital learning resources that can be integrated into classroom teaching to support more student-centered learning. Teachers can utilize e-modules not only as complementary materials, but also as structured learning guides for pre-learning or self-study activities, so that face-to-face class time can be focused on Discussion, Analysis, and reflective learning activities.in Social Studies. In addition, the study opens up opportunities for further development, such as extending the E-module content to other social studies topics, integrating interactive assessment or feedback features, and testing its effectiveness in improving students ' critical thinking skills and learning independence. This potential development can improve the applicability and sustainability of e-modules as a source of digital learning, thus strengthening the practical contribution of this research to social studies education.

REFERENCES

Alivia, Z. P., Wahyudin, & Nursalman, M. (2023). Pengembangan Modul Sebagai Multimedia Pembelajaran Interaktif Dengan Model Discovery Learning Untuk Meningkatkan Kognitif Siswa. *Digitech: Digital Transormation Technology*, 45-56.

Almira, D. (2025). Pengaruh Teknologi Terhadap Pendidikan di Era Digital. *MIJ*, 428-432.

Astriani, Y., & Marzuki, I. (2021). PJJ: Digital Transformasi Daring Pada Evaluasi Pendidikan Di Era Pandemi Covid-19. Vol 17. *Rusyan Fikr: Jurnal Pemikiran & Pencerahan*, 76-82.

Auliana, R., Rahmawati, F., Mahanani, T., & Marwanti. (2024). The Factors that Influence Student Satisfaction During Online Learning on the Subjectof Culinary in the Bachelor of Applied Culinary Program of UNY. *Pedagogia*, 43-55.

Branch, R. M. (2009). *Instructional Design: The ADDIE Approach.* New York: Springer.

Fentyrina, A., & Mardi. (2025). Transformasi Digital dalam Manajemen Pendidikan: Tantangan dan Peluang di Era Pendidikan 5.0. *JSM*, 494-501.

Flip Builder. (2025). *Flip Builder*. Diambil kembali dari Retrieved from Flip PDF Profesional: https://cms.flipbuilder.com/id/flip-pdf-pro

Gerso, N., Ibrahim, M. I., & Wijaya, A. M. (2024). Analisis Pembelajaran IPS Pada Kurikulum Merdeka Belajar di SMP Argopuro 1 Kabupaten Jember. *utile: Jurnal Kependidikan*, 53-62.

Gustiani, S. (2019). Research and Development (R&D) Method as a Model Design in Educational Research and Its Alternative. *Holistic Journal*, 12-23.

Hidayat, F., & Nizar, M. (2021). Model ADDIE (Analisis, Design, Development, Implementation, and Evaluation) Dalam Pembelajaran Pendidikan Agama Islam. *JIPAI: Jurnal Inovasi Pendidikan Agama Islam*, 29-38.

Huraerah, A. J., Abdullah, A. W., & Rivai, A. (2023). Pengaruh Teknologi Informasi dan Komunikasi Terhadap Pendidikan Indonesia. *Journal of Islamic Education Policy*, 133-144.

Idayanti, Z., & Suleman, M. A. (2024). E-Modul Sebagai Bahan Ajar Mandiri Untuk Meningkatkan Hasil Belajar Peserta Didik. *Jurnal Penelitian Pengembangan Pendidikan*, 127-133.

Inanna, Nurjannah, Ampa, A. T., & Nurdiana. (2021). Modul Elektronik (E-Modul) Sebagai Media Pembelajaran Jarak Jauh. *Seminar Nasional Hasil Penelitian*.

Jaenudin, R. (2014). Konsep Ilmu Pengetahuan Sosial Dalam Sistem Pendidikan Di Indonesia. *Jurnal Forum Sosial*, 440-451.

Khasanah, U., Delima, Wamini, J., & Husna, R. L. (2019). Peran Media Digital Video Interaktif Dalam Meningkatkan Pemahaman Materi IPS Peserta Didik Di Madrasah Ibtidaiyah. *Misool: Jurnal Pendidikan Dasar*, 100-110.

Ratnawati, S. A., Rafianti, R., Bagaskara, R. S., & Afriliansyah, M. D. (2024). Pelatihan Pembuatan E-Modul Menggunakan Flip Builder Dan Mengubahnya Menjadi Flipbook Pada Guru IPS UPT SMPN MGMP Gugus Dewi Sartika, Kecamatan Tapung, Kabupaten Kampar. *Journal of Community Dedication* , 1074-1082.

Richey, R., & Klein, J. (2007). *Design and Development Research: Method, Strategic, and Issues In Lane Akers.* Francis: Routledge Taylor & Francis.

Rosmalah, Muliad, & Alfiyyah, A. N. (2025). Pengaruh Penggunaan Media Big Book Digital Terhadap Kemampuan Membaca Permulaan Siswa Kelas II. *JPEIR: Jurnal of Primary Education Innovation and Research*.

Sanjaya, P. A. (2022). Prosiding Seminar Nasional Pendidikan Sejarah dan Ilmu Sosial Pengembangan Pembelajaran Sejarah Berdiferensiasi Menggunakan E-Module Berbasis Book Creator. *PRODIKSEMA I Prosiding Seminar Nasional Pendidikan Sejarah dan Ilmu Sosial "Pembelajaran Sejarah Berbasis Kearifan Lokal Sebagai SUmber Pendidikan Karakter"*, 52-60.

Subagio, I. A., & Limbong, A. M. (2023). Dampak Teknologi Informasi Dan Komunikasi Terhadap Aktivitas Pendidikan. *Journal of Learning and Technology*, 43-52.

Sucipto. (2024). Analisis Tantangan Dan Peluang Implementasi Pembelajaran Berbasis Teknologi Di Era Digital Learning. *JIPP: Jurnal Ilmiah Pendidikan Citra Bakti*, 902-916.

Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D.* Bandung: Alfabeta.

Sulistyowati, C., & Asriati, N. (2024). Pemanfaatan Teknologi Untuk Meningkatkan Efektivitas Pembelajaran Dan Keterlibatan Belajar Di Era Digital. *Jurnal Ilmiah Pendidikan Citra Bakti*, 1176-1188.

Susandi, A., Zativalen, A., Mulyono, K., Laili, V. N., & Irmaningrum, R. N. (2025). VARK (Visual, Auditory, Read/Write and Kinesthetics) Model with Digital Scrapbook for Improving Al-Quran Reading Skills. *Pedagogia*, 198-212.

Yuniarti, A., Titin, Safarini, F., Rahmadia, I., & Putri, S. (2023). Media Konvensional Dan Media Digital Dalam Pembelajaran. *JUTECH: Journal Education and Technology*, 84-95.

Zamsiswaya, Syawaluddin, & Syahrizul. (2024). Pengembangan Model ADDIE (Analysis, Design, Development, Implementation, Evaluation). *JPTAM*, 46363-46369.

LIST OF TABLE

Table 1 / Data from experts material validation analysis

No	Indicator	Total Score	Average Score	Category
1.	Material Feasibility	21.5	4.3	Very Good
2.	Language Feasibility	21.5	4.3	Very Good

Table 2 / Data from experts media validation analysis

No	Indicator	Total Score	Average Score	Category
1.	E-Modul Cover Design	9	4.5	Very Good
2.	Languange	20	4.5	Very Good
3.	Typo	15	5	Very Good
4.	Illustration	10	5	Very Good
5.	Layout	4	4	Good

Table 3 / Readability test results by social studies teacher

No	Indicator	Total Score	Average Score	category
1.	Material Feasibility	32	4.57	Very Good
2.	Language Feasibility	17	4.25	Very Good
3.	Design Feasibility	9	4.5	Very Good
4.	Illustration Feasibility	15	5	Very Good

Table 4 / Analysis data of responses by students

No	Indicator	Total Score	Average Score	Category
1.	Material Feasibility	18.73	4.68	Very Good
2.	Language Feasibility	9.27	4.64	Very Good
3.	Illustration Feasibility	9.4	4.7	Very Good
4.	Design Feasibility	9.51	4.76	Very Good
5.	Typo Feasibility	13.99	4.66	Very Good

LIST OF FIGURE

Figure 1 / Observation to SMP N 1 Karangmojo

Figure 2 / Test trial for students at SMP N 1 Karagmojo