

DEVELOPMENT OF INTERACTIVE LEARNING MEDIA BASED ON CANVA FOR EDUCATION TO IMPROVE DIGITAL LITERACY SKILLS IN SOLAR SYSTEM MATERIAL IPAS PROJECT

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ABSTRACT

The background of this study is based on the low level of digital literacy among students, which is influenced by the lack of innovative learning media and the limited ability of teachers to develop attractive digital media. Canva for Education was chosen as a solution because it provides easy-to-access interactive design features and supports collaborative and creative learning. This research aims to develop interactive learning media based on Canva for Education to improve students' digital literacy skills in IPAS projects at vocational high schools (SMK). The contribution of this research is the development of an innovative project-based learning method that is relevant to educational needs in the digital era, where this research uses the ADDIE (Analysis, Design, Development, Implementation, Evaluation) development model to create interactive learning media. The research subjects were 33 students from class X AKL 3 at SMK Negeri 4 Klaten in the 2024/2025 academic year. The developed media was deemed highly suitable by subject matter experts (86%) and media experts (83%). Following implementation, the media received positive feedback from students and teachers, particularly regarding ease of use, increased motivation, and student engagement in learning. Effectiveness testing showed significant results, with an N-Gain score of 0.75 (high category) from pre-test and post-test scores. This indicates a substantial improvement in students' digital literacy skills after using the interactive Canva-based media. Overall, this study concludes that the interactive Canva for Education learning media is effective, practical, and suitable for supporting digital literacy in the IPAS project.

Keywords: *Interactive learning media, canva for education, digital literacy, ipas project, addie model*

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INTRODUCTION

The development of digital technology has changed the way students learn in vocational high schools (SMK), requiring them not only to master material but also to have strong digital literacy skills to compete in the industry 4.0 era. Digital literacy the ability to search, understand, disseminate, and use digital information effectively has become a crucial competency for SMK students.

However, research shows that the digital literacy level of SMK students in Indonesia remains low. A survey of senior high school students in Ruteng City indicated their ability to be media-literate was low, and the issues at stake were lack of interest, expense, and poor infrastructure (Menggo, 2024). Low levels of maturity in digital technology competence in all areas were also revealed in a survey of vocational students (Astuti et al., 2021). In response to addressing this issue, efforts have been directed at developing m-learning applications that have been promising in improving digital literacy and learning performance (Purmadi et al., 2022). Nevertheless, challenges like teacher capacity to produce effective digital media continue to persist. A research study in SMK Negeri 3 Parepare found that current learning processes cannot engage students and therefore there is a need for interactive multimedia to build multimedia competence (Syah et al., 2019). The findings emphasize the need for innovative learning media and teacher training to improve digital literacy in Indonesian vocational education. As a solution, Canva for Education emerges as a web-based graphic design platform that is easily accessible, allowing teachers and students to create interactive materials such as infographics, videos, presentations, and quizzes. Canva has proven effective in improving the quality of learning, student engagement, and supporting collaborative and creative learning.

Recent studies indicate the effectiveness of Canva learning materials in boosting learning performance. Canva has a positive impact on the motivation of learners, learning outcomes, and educational performance in topics and learning levels (Efendi et al., 2023; Susanti et al., 2025). The tool enhances the involvement of learners by engaging with behavioral, emotional, cognitive, and agentic dimensions, and developing critical thinking and creativity (Hutapea et al., 2024). The intuitive interface and interactive features of Canva make it simple to design attractive content that enhances science literacy and enables 21st-century technological advancements (Susanti et al., 2025). Furthermore, Canva facilitates 21st-century students' skills, particularly in writing, through enhancing critical thinking, creativity, communication, and cooperation (Anggraeni & Pentury, 2022). Despite some limitations, such as the scarcity of free features, Canva is an innovative approach to learning that combines traditional learning with digital literacy and provides the learners with the requirements of today's world (Hutapea et al., 2024). To create reliable, practical, and effective learning media, this research often uses the ADDIE development process, which stands for Analysis, Design, Development, Implementation, and Evaluation.

However, challenges persist, including lack of infrastructure support, inadequate teacher preparation, limited access to digital devices, difficulty in mastering technology, developing relevant content, and allocating sufficient time (Nurmawati, 2025). Therefore, it is essential for the IPAS project at vocational schools to create interactive learning materials based on Canva for Education. The project's target aligns with modern workplace goals, which include improving digital literacy and creating a more engaging and collaborative learning environment. In summary, the development of interactive learning media based on Canva for Education by the IPAS project is crucial to enhancing the digital literacy level of vocational high school students. The validity, practicality, and effectiveness of the media in improving students' digital literacy will be the focus of this research, which will use the ADDIE development model. It is believed that this research will help vocational students become more digitally literate, which in turn will improve the quality of vocational education in Indonesia.

Based on the above, there is a research gap that needs to be addressed, namely the suboptimal development of interactive learning media based on Canva to improve students' digital literacy skills in solar system material within the context of IPAS projects. Therefore, this study aims to develop interactive learning media based on Canva for Education that can enhance students' digital literacy skills in solar system material within IPAS projects, as well as to assess the effectiveness of such media in supporting innovative, collaborative, and relevant learning aligned with 21st-century needs.

RESEARCH METHOD

According to Sugiyono (2019), this research follows the Research and Development (R&D) process. The five-step ADDIE model—Analysis, Design, Development, Implementation, and Evaluation—forms the basis of the research planning process.

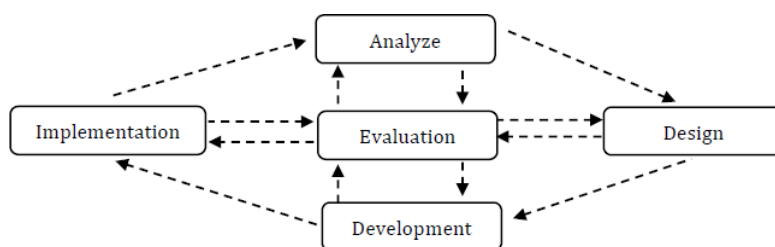


Figure 1.
Stages of the ADDIE Model

The initial stage of the research involves analyzing the curriculum used in accordance with the characteristics of the students and the learning media used, where the product design stage can be carried out with the help of the Canva for Education application. The product development stage involves validation testing by relevant experts in the field of media content and language. The implementation

stage involves practical testing by teachers and students, while the final stage consists of evaluation to determine the effectiveness of the media used, as measured by pre-test and post-test results of the students.

This research was conducted at SMK Negeri 4 Klaten with a sample taken from the population of students in class X AKL 3 and using purposive sampling techniques involving 33 students in the 2024/2025 academic year. Data collection was conducted through observation, interviews, questionnaire completion, and tests. Instrument validation was carried out in two main steps: content validation, which involved research instruments such as pre-tests and post-tests, and rubrics were validated by subject matter experts and educational media experts to ensure alignment with digital literacy indicators and solar system curriculum content. Format and presence validation were used to ensure that the instruments were consistent with writing standards and that no important items were omitted or data was missing during data collection.

The data analysis techniques used are twofold: qualitative descriptive data analysis, where the data is obtained from interviews and recommendations from colleagues who understand the details of interactive media development. Meanwhile, quantitative descriptive analysis involves analyzing the collected data based on the responses to validated instruments and student learning outcomes. The instruments used include post-test and pre-test instruments to measure improvements in students' knowledge and digital literacy before and after the intervention, with questionnaires used to measure student and teacher responses to the media.

RESULTS AND DISCUSSION

RESULTS

The purpose of this research is to help vocational high school students create solar system-themed interactive media using the Canva platform for their Science Project. Creating this media with the aim of improving students' digital literacy through a platform that is available anytime and anywhere is our top priority. To keep students interested and engaged, this interactive media incorporates features such as games and resources tailored to their learning styles. Analysis, design, development, implementation, and evaluation make up the ADDIE Model, which was used to create these materials. By examining Canva's interactive media through the lens of the ADDIE paradigm, this research will focus on three key areas: the practicality of the media, its feasibility, and its effectiveness in meeting learning objectives.

Analysis Stage

At this stage, observations and interviews were conducted in the form of analyzing the curriculum of SMK Negeri 4 Klaten in the 2024/2025 academic year using the implementation of the "Merdeka" curriculum with a deep learning approach. The IPAS project to be analyzed on solar system material where this

course examines the phenomena around life scientifically by applying scientific concepts and competency elements that refer to digital literacy competencies. After analyzing the curriculum, the next stage is an analysis of the characteristics of students based on the learning style of students in addressing the lack of motivation in a literacy culture in finding information related to learning.

Based on the analysis of students' needs in the learning process in preparing learning media that can attract students' attention in providing ease of use and supporting the achievement of learning objectives in accordance with technological developments where students' abilities are significantly correlated with literacy skills.

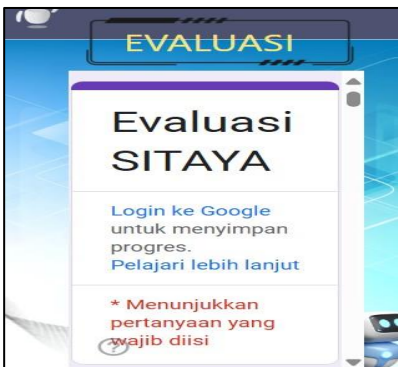
Design Stage

This stage is carried out designing in producing learning products that are in accordance with the analysis of student needs. In preparing the initial design of the product concept in the form of Canva for Education, the first step is to collect teaching material references based on the learning objectives, namely the Solar System Sidtem, then choose an application according to student needs, namely using Canva. In the design stage, researchers focus on creating interesting elements to support the material, such as videos and images, so that the media is easy for students to access and operate. The media design includes learning objectives, content, games and evaluation. During this phase, the researcher also created a tool to evaluate the next Canva interactive learning material. Take a look at this media design for example.

Table 1.

Canva Interactive Media Product Design

No.	Design Picture	Description
1.		The home page has the main menu in the form of objectives, content, games and evaluation.
2.		The content pages consist of materials presented based on learning styles, including visual (e-books, videos, AI boards), auditory (AI audio and podcasts), and kinesthetic, which are images and tutorial videos integrated with YouTube as a form of implementing digital literacy at SMK Negeri 4 Klaten.

No.	Design Picture	Description
3.		Game page in the form of a game on solar system material.
4.		Evaluation page by integrating google from for evaluation of assessments both pretest and post test.

Development Stage

In the third and final stage, development, the researcher consulted with experts to verify the data and ascertain whether the developed media were fit for use. During this phase, two colleagues with expertise in information technology (IT) media and one colleague with expertise in science and technology validated the data. We collected the following information.

Table 2.

Media Expert Validation Results

No.	Evaluation Aspect	Total Score	Persentase (%)	Criteria
1	Media Content	21	84	Very Good
2	Media Communication	24	80	Very Good
3	Media Packaging	22	88	Very Good
4	Media Accuracy	16	80	Good
Average			83	Very Good

Source: Processed data (2025)

Based on the results of media expert validation in table 2, the value for each aspect of the assessment is in the very feasible category but in the media accuracy section gets a value of 80 in the feasible category. However, the average result of the total validation of media experts is 83% with very feasible criteria which interprets that the media products produced are very feasible as learning media.

Table 3.
Material Expert Validation Results

No.	Evaluation Aspect	Total Score	Percentage (%)	Criteria
1.	Content Material	17	85	Very Good
2.	Material Desain	22	88	Very Good
3.	Material	22	88	Very Good
4.	Depth of Teaching Material	18	90	Very Good
5.	Reference	8	80	Good
Average			86	Very Good

Source: Processed data (2025)

The results of the material expert validation in table 3, indicate that there is one aspect, namely the reference that is included in the feasible category because the researcher does not include a reference source in the media made but the final result obtained is 86% with a very feasible category where the material in the media to be used in learning is synchronized.

Product revision is carried out with the direction of the expert validator this revision process is very important because it is to review the weaknesses and shortcomings of the product. The results of recommendations for improving the design of learning media products from each validator are as follows.

- The opening of the media expert provided revisions to the front pages aspect by describing the meaning of AI-SITAYA to be more in accordance with the material to be provided not in the form of acronym words.
- There are no general instructions for using the application in the form of an overview of media content.

Implementation Stage

This implementation stage is the stage where the learning process in the classroom uses the interactive media that has been made and examines the effectiveness of the media products used on the digital literacy skills of class X AKL 3 students at SMK Negeri 4 Klaten.

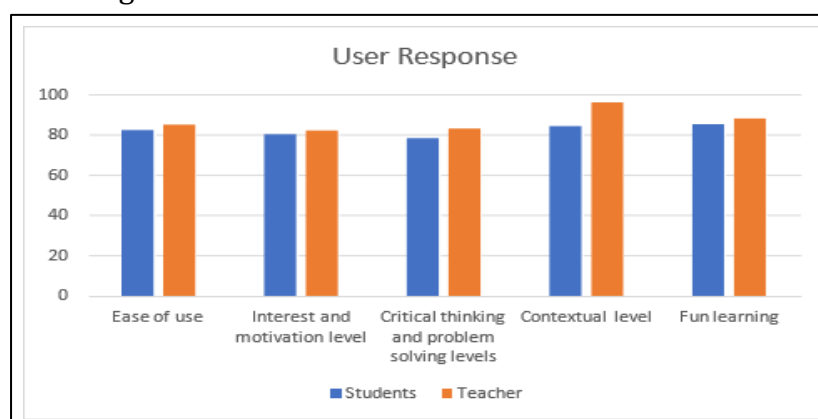


Figure 2.
User Response Graph

Based on Figure 2 above where the user response analysis of 33 students and 3 teachers on the aspect of user convenience obtained data 82% and 85% which are in the very good category, in the level of interest and motivation obtained 80% and 82%, where the resulting media has a positive impact on learning. On the level of critical thinking and problem solving where from student respondents only 78% in the good category so that there is a need for habituation in solving problems with a high order thinking mindset. While in contextual is in very good criteria so that it can make learning fun.

Evaluation Stage

In this evaluation stage, the effectiveness of the use of media is tested based on the results of the pre-test and post-test on the solar system in the IPAS Project in supporting digital literacy skills from this evaluation analysis, the following results are obtained.

Table 4.
Digital Literacy Skill Scores

Component	Pre-test	Post-test	N Gain	Category
Lowest Score	35	75		
Top Ranking	58	97	0,75	High
Average	47	91		

Source: Processed data (2025)

Table 4 shows that students of class X AKL 3 of SMK Negeri 4 Klaten experienced an increase in digital literacy skills after using Canva interactive learning media about the solar system. The average student pre-test score was 47 and the student post-test score was 91, with an N gain value of 0.75 including in the high category.

DISCUSSION

Digitalization of education has become a major requirement in the 21 st century, learning word. One of the main challenges is to improve students' digital literacy skills, especially in IPAS subjects. Digital literacy not only includes the ability to use technological devices, but also the ability to analyze, assess, and produce and communicate information responsibly. Digital literacy is about using, interpreting, and transmitting information using digital channels (Rana & Kanwar, 2020; Naufal, 2021). It is crucial in adapting to the information-laden digital age and adapting to rapid technology developments (Reddy et al., 2020). Learning digital literacy is significant in developing critical thinking skills, creativeness, and inquisitiveness (Naufal, 2021). It also assists in the achievement of sustainable development goals and impacts various sectors, particularly education (Reddy et al., 2020). ICT in learning and virtual learning environments have been vowing to improve students' information fluency and digital literacy abilities overall (Bhat, 2023; Reddy et al., 2020). The aspects of digital literacy include tools and systems, information and data, sharing and creation, and historical and cultural contexts (Naufal, 2021). As

technology improves, digital literacy is a critical competence for 21st-century citizens to be effective in participating in society (Reddy et al., 2020).

To answer this challenge, the development of interactive learning media based on Canva for Education is an innovative solution that can significantly improve student motivation, engagement, and learning outcomes. Interactive learning media is a major requirement in this increasingly sophisticated era of globalization (Hidayat, 2022). Previous research which resulted in the development of animated video media based on the Canva application (Hapsari & Zulherman, 2021) where the development of these media results met the criteria in increasing student motivation and achievement. The similarity in this development research is that both use Canva for Education as a tool in making products but in the material and discussion of the display of different media content.

Interactive teaching materials are a reinforcement for this research so that they can be adopted by teachers at the SMK level, especially in IPAS subjects. Recent research underscores the importance of interactive learning materials in enhancing students' learning and engagement, particularly in Natural and Social Sciences (IPAS) courses. Studies have identified that more interactive, locally contextualized teaching materials incorporating local wisdom like Tri Hita Karana (Sudirman et al., 2024) need to be developed. The development of interactive multimedia learning materials according to the ADDIE model has shown rigorous validity and usability in improving students' Higher Order Thinking Skills (Maladerita et al., 2024). For vocational schools, interactive online-based physics learning materials have been effective in developing learning achievements (Yusdarina & Sakti, 2021). Furthermore, Android interactive media developed using the Borg and Gall model has been proven beneficial in enhancing IPAS learning outcomes of students in elementary school (Masrifah & Setyasto, 2024). The combined outcomes in the above research depict the efficacy of technology-driven interactive teaching materials in delivering more participatory, efficient, and culturally responsive learning experiences at different levels of education. The research and development steps used use Research and Development development with the ADDIE development model which includes stages: Analyze, Design, Development, Implementation and Evaluation.

This research begins by analyzing the learning and characteristics of students at SMK Negeri 4 Klaten, especially class X AKL 3. Learning analysis uses an independent curriculum while the characteristics of class X AKL 3 students use interview techniques in IPAS learning which so far only uses LKPD or job sheets in the process, causing the impression of boredom in students. Therefore, researchers developed interactive learning media based on canva for education in improving students' digital literacy, especially class X AKL 3. This research starts from the researcher developing media through the Canva For Education application in making AI-based SITAYA where the media has tested the material expert, the average result on the feasibility aspect is 86% with a decent category. During field implementation where data was presented before treatment and after treatment

using interactive media based on Canva For Education, there was an increase in digital literacy of class X AKL 3 students as indicated by the magnitude of N-Gain 0.75 in the high category where the increase occurred significantly before using interactive learning media based on Canva for Education with after using Canva for Education learning media in IPAS learning for Solar System material collaborated with the use of AI in making learning media.

By developing the characteristics of interactional learning media based on Canva for Education which is able to produce interactional, visually attractive, audio-visual and collaborative learning media that supports the improvement of digital literacy at the SMK level where the media developed meets the criteria of valid, practical, and effective, and gets positive responses from teachers and students. The effectiveness of Canva-based interactive learning media in enhancing students' engagement and learning achievement on various subjects and levels of education. These types of media have been established as valid, practicable, and effective to promote digital literacy and 21st-century competencies (Sari & Rofiki, 2024; Alfatih et al., 2024; Anaperta et al., 2023). This kind of development is typically driven by structured models like ADDIE or Plomp, which ensure a systematic process of design and implementation (Alfatih et al., 2024; Sari & Rofiki, 2024). Interactive media developed using Canva have been very effective in enhancing students' learning outcomes with high validity and practicality ratings given by experts and users (Sari & Rofiki, 2024; Anaperta et al., 2023). Additionally, there is a growing need for new, interactive, and contextual media that can convey abstract ideas persuasively and integrate with students' digital interests (Oktaria et al., 2025). This study is part of creating digital learning media that is innovative and grounded on 21st century learning needs.

CONCLUSION

The use of Canva as an educational media to present solar system content in the Science Project course for grade X vocational students has been a great success. Expert validation from the media industry reached 83%, placing it in the "very feasible" category and proving that this media product is ideal for educational purposes. Furthermore, material experts validated 86% of the content offered, placing it in the highly practical category and proving that it is well integrated.

With an N-Gain of 0.75 (high category), this media is also highly effective. The results show that Canva's solar system interactive media helps class X AKL 3 students at SMK Negeri 4 Klaten improve their digital literacy skills. Canva has achieved its goal of producing high-quality educational media by making it easy to use and enhancing understanding through the incorporation of interactive features.

This study opens up new possibilities for creating engaging and interactive learning materials for science projects, which in turn helps to create a more modern and effective way of teaching science in the digital age. Educators and media makers should use these results as a roadmap to improve the effectiveness of digital learning materials, particularly for Science Projects at the SMK level.

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