Development of Problem-Based Blended Learning (PBBL) Assisted by Articulate Storyline to Optimize Critical Thinking Skills

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Abstract
The development of technology in education becomes more advanced by utilizing learning models assisted by digital media. These innovations allow for more flexible and interactive teaching methods, increasing student engagement and understanding. Technology based learning enables broader access to information and allows students to learn independently. By using digital media, students understand difficult concepts and interact directly with the material. This study aims to develop Problem-Based Blended Learning (PBBL) assisted by articulate storylines. The method used was designed using the ADDIE (Analyze, Design, Development, Implementation, Evaluation) research model. The analysis in this study employed qualitative descriptive and quantitative descriptive analysis. The research instrument was in the form of a validation questionnaire for learning experts and media validation. The results of the study showed that learning experts obtained a score of 88% (very worth it) and media experts obtained a score of 80% (very worth it). The results of the small group questionnaire, the product receives score of 95 out of the ideal score of 100. This indicates that the product is highly feasible and can be implemented without revision. So, it can be concluded that PBBL assisted by articulate storylines is an effective learning approach. PBBL based on Articulate Storyline has great potential to be applied in the curriculum as a learning medium that adapts to various subjects. This technology integration not only answers the challenges of problem-based learning but also enriches students' experiences, increases their engagement, and supports more student-centered learning. Additionally, it encourages collaborative learning and critical thinking.

Keywords: Problem-based blended learning, articulate storyline, critical thinking skills

INTRODUCTION

The integration of technology in education changes the way learning occurs, with a focus on interactive and student-centered approaches. As the demand for engaging and effective teaching methods increases, educators explore various instructional strategies to enhance students' cognitive abilities and problem-solving skills. The development of digital technology in the 21st century aligns with the era of Society 5.0. Critical thinking skills refer to the ability to use cognitive abilities or strategies to improve the outcomes of goals to be achieved. This skill involves problem-solving, drawing conclusions, assessing possibilities, and making decisions. In other words, when someone thinks critically, they can evaluate the results of their thinking process, assess how good a decision is, and determine how effective a solution to a problem is (Sa'diyah et al., 2024), identify how effective a problem will be solved.

The problems often faced by students in the learning process are low critical thinking and problem-solving skills. Many students still tend to rely on memorization and repetition of material without engaging in higher-order thinking processes such as analysis, evaluation, and synthesis of information (Sa'diyah et al., 2024). This is caused by teaching methods that do not challenge students to develop logical and systematic thinking skills to solve problems. For example, in mathematics and related fields, students often struggle to apply critical thinking to address more complex and dynamic situations. Research by Mauleto (n.d.) revealed that to solve more complicated problems, students need thinking skills that involve creativity and the ability to make decisions based on deep analysis.

To address this issue, the integration of technology in learning can be an effective solution. Technology can facilitate problem-based learning and encourage the development of critical thinking skills through digital applications or platforms that allow students to practice solving problems interactively (Sa'diyah et al., 2024). Although technology offers various conveniences and access to develop thinking skills, the adaptation to technology in learning needs to be carried out carefully.

Habibah explained that 21st century society must have critical thinking skills (Habibah et al., 2022). Critical thinking skills are skills that must be possessed in learning in the 21st century. Samin stated that critical thinking skills are important to be activated in learning in the 21st century (Basri, 2023). Through critical thinking skills, students can interpret information and make decisions in the future as citizens, and are ready to face the challenges of the 21st century (Kurniawan & Rahman, 2019). Facts show that the critical thinking skills of PPG Prajabatan students of the Social Studies Program, State University of Malang in the second grade, wave two of 2023 are relatively low with a score of 35%. This data was obtained from the results of a test containing critical thinking skills indicators. Low critical thinking skills cause students not to understand the problems they face.

Efforts that can be made to accommodate learning problems related to critical thinking skills through problem based blended learning (PBBL) assisted by articulate storyline. PBBL assisted by articulate storyline is a development of the problem-based learning model in its implementation through offline and online patterns (blended learning) by integrating the articulate storyline application. Blended learning assisted by articulate storyline is used to implement technology in learning. Articulate Storyline is software that can be used as a medium for communication, presentation and information delivery (Syabri & Elfizon, 2020). Articulate Storyline is a program to support digital-based learning (Setyaningsih et al., 2020). The advantage of Articulate Storyline is that

data can be stored and used by students flexibly from time and place (Selsabila & Pramudiani, 2022). Articulate Storyline in the presentation making process requires design skills to produce an attractive product (Selsabila & Pramudiani, 2022). The Articulate Storyline program is supported by smart braiware in a simple way with interactive tutorial procedures to help users format CDs, personal webs and word processing, through templates published both online and offline. Articulate Storyline has a simple appearance that makes it easy to design content (learning) equipped with videos, animations and quizzes

PBBL assisted by articulate storyline is expected to build critical thinking skills, because the PBBL model presents material that integrates technology and problems contextually. Several studies have been conducted related to articulate storyline. The results of Juhaeni et al.'s research state that articulate storyline media can increase motivation and learning activities of MI students (Juhaeni et al., 2021). In addition, Purnama concluded that the development of media based on articulate storylines can improve students' understanding (Syabri & Elfizon, 2020). The studies that have been conducted related to articulate storyline have not yet integrated the PBBL (problem based blended learning) model. Several studies that combine problem-based learning with blended learning have an effect on learning outcomes, critical thinking skills, and scientific skills.

Although several studies have explored the integration of technology in education and its impact on student learning, there is a clear gap in research related to the specific application of Problem-Based Blended Learning (PBBL) assisted by Articulate Storyline, particularly in enhancing critical thinking skills. For example, (Tabbu et al., 2023)investigated the impact of blended learning on student engagement and concluded that blended learning methods enhance student involvement. However, this study did not delve into how digital tools, such as Articulate Storyline, directly contribute to the enhancement of cognitive skills, especially critical thinking. Dewantara, Wati, Misbah, Mantari, and Haryandi examined the Problem-Based Learning (PBL) to improve students' problem-solving abilities, but they did not explore how the integration of digital media and technology within PBL could optimize critical thinking (Dewantara et al., 2020). Furthermore, Wahyu and Yuliana examined the use of Articulate Storyline in creating interactive learning materials and found that it increased student engagement and motivation (Andini & Wahyuningsih, 2021). However, this study did not discuss how this tool specifically supports the development of critical thinking skills, which is central to this research. Therefore, while these studies provide valuable insights into blended learning, PBL, and the use of Articulate Storyline, they do not test the combined potential of these elements in facilitating critical thinking, highlighting the need for further research to fill this gap. This study aims to fill this gap by developing a PBBL model assisted by Articulate Storyline, designed to optimize critical thinking skills among students.

METHOD

This study used the Research and Development (R&D) method with the ADDIE development model. The ADDIE model consisted of five stages: analysis, design, development, implementation, and evaluation. In this study, the ADDIE model was applied only up to the development stage. The result of this development was Problem Based Blended Learning (PBBL) assisted by an Articulate Storyline. The flow of this research stage, namely Analyze, was carried out with PPG Prajabatan students, wave 1 in 2023, class 1 IPS, involving 30 students to analyze the needs of the learning model

assisted by an Articulate Storyline. The design stage was carried out by designing the Problem Based Blended Learning (PBBL) model assisted by an Articulate Storyline, which was then adjusted to the needs analysis data to produce a valid or feasible product according to the identified needs. The preparation process started with creating an outline, designing materials, and making a flowchart for the Problem Based Blended Learning (PBBL) assisted by an Articulate Storyline. Implementation, at this stage, everything that had been designed was installed or arranged according to its role or function so that it could be implemented. The purpose of delivering learning materials was to: (a) Guide students to achieve competency, (b) Ensure problem-solving to address gaps in students' learning outcomes, (c) Ensure that by the end of the learning program, students should have possessed the required competencies, knowledge, skills, and attitudes. This stage aimed to assess the impact of high-quality, engaging, effective, and efficient learning on the educational process. Evaluation, the steps for evaluation in this learning development program included: (a) Did students enjoy the learning program they had participated in? (b) How beneficial did students feel the program had been for them? (c) To what extent had students been able to learn the material or content?

The development stage involved creating the Problem Based Blended Learning (PBBL) model assisted by an Articulate Storyline. After the Problem Based Blended Learning (PBBL) assisted by an Articulate Storyline was developed, the next step was to validate it through learning and media experts. The aim was to assess the feasibility of the developed Problem Based Blended Learning (PBBL) model before its implementation. Data collection techniques during the needs analysis stage included using a closed questionnaire that gathered information about students' preferred learning styles, difficulties with geography material, media used during study, and the types of products students desired for learning. During the development stage, a validity test was conducted to obtain qualitative data from the validation results carried out by experts/validators. The experts/validators who conducted the validation included learning and media experts. The data collection instrument used was a validation questionnaire, the results of which were used to determine the feasibility of the developed product. This study used two types of data: quantitative and qualitative data. Quantitative data was obtained from distributing questionnaires and validation scores to assess the feasibility and practicality of the developed product. Qualitative data was obtained from various suggestions, responses, and comments, which served as input for further product development. Quantitative data were processed using a Likert scale through a validated formula. The following is an explanation of the values of the Likert scale as follows.

Table 1. Description of Likert Scale Assessment

Score	Criteria	Information
4	Very Valid	Very good, no need for revision
3	Valid	Decent, no need for revision
2	Quite Valid	Fairly screened, needs revision
1	Less Valid	Not good enough, needs revision

The percentage results are interpreted based on the following table.

Table 2. Interpretation Criteria for Media and Material Validator Opinions

Score Interval (%)	Eligibility Criteria	Practicality criteria
81-100	Very Worth It	Very Practical
61-80	Worthy	Practical
41-60	Quite decent	Quite Practical
21-40	Less Worthy	Less practical
0-20	Very inadequate	Very Less Practical

FINDINGS AND DISCUSSION

The product produced from this research is Problem Based Blended Learning (PBBL) assisted by articulate storyline based on needs analysis. The stages of this development are as follows.

1. Analysis

The results of the needs analysis are as follows.

Table 3. Results of Needs Analysis

No	Statement	Evaluation (%)
1	Wide differentiation learning material is difficult to understand	60.7
2	Learning activities tend to be boring	60
3	Chapters in the material are difficult to understand and too broad	75.1
4	Teaching materials used	60
5	Modern media helps in understanding the material	80
6	Digital learning is more interesting than books	90

Based on the needs analysis, as many as 90% of students choose learning using digital, in overcoming this, learning media are needed that meet learning needs. Digital-based learning can potentially foster students' interest in learning (Nugraha et al., 2023), increasing motivation and sustainability in improving student learning outcomes (SP, 2022). so that in the 21st century the use of digital-based media can train 4C skills (creativity, critical thinking, collaboration, and communication) (Sriyanto, 2021).

2. Design

This stage is carried out by designing the Problem-Based Blended Learning (PBBL) framework, assisted by Articulate Storyline, which merges the power of problem-based learning with the flexibility and interactivity of digital learning platforms. The PBBL model, enriched with the Articulate Storyline platform, offers an innovative approach to education that focuses on real-world problem solving while providing an engaging, flexible, and interactive learning environment. By incorporating Articulate Storyline, which allows for the creation of dynamic, multimedia-rich learning experiences, this approach enhances student interaction and engagement. The key objective of this model is to stimulate students' active participation, thereby fostering the development of critical thinking and problem-solving skills. The core design includes a combination of self-paced and instructor-led activities, providing students with both autonomy and structured guidance. This model is intended not only to increase engagement, but also to ensure that learning is deeply connected to real-world issues. The PBBL framework encourages learners to engage with complex, real-life scenarios, where they can explore challenges and solutions through a practical and hands-on approach.

The final product of this development is a comprehensive learning framework supported by a detailed syntax, integrating all necessary elements of the PBBL model. The Articulate Storyline platform provides interactive features such as drag-and-drop activities, quizzes, branching scenarios, and multimedia content, enabling students to learn in an engaging and personalized manner. A significant strength of this learning media is its differentiation of content. Beyond just delivering core subject matter, the media introduces exploratory activities that encourage deeper learning. The interactive digital tools help students to not only understand theoretical concepts but also apply them to real-world contexts. The integration of up-to-date, factual news and current events serves as a bridge between theory and practice, making the learning experience both relevant and timely.

Moreover, the context-based approach of the media ensures that students can link academic content to actual events, allowing them to see the practical implications of their learning. This real-world connection motivates students by demonstrating the value of what they are learning, while also promoting deeper engagement with the material. By participating in scenario-based learning and discussing actual issues, students are empowered to make informed decisions, thereby enhancing their ability to solve problems effectively. Through this innovative blend of problem-based learning with the Articulate Storyline platform, the approach not only aims to improve student motivation and engagement but also strives to increase learning outcomes. The combination of contextually relevant content, interactive features, and a focus on problem-solving ensures that students are not only absorbing information but also developing the skills they need to succeed in real-world situations. Ultimately, this method is designed to increase student motivation, boost their academic achievement, and foster the skills necessary for lifelong learning.

3. Development

This stage is by making product development according to the needs analysis that has been made, then validation is carried out. The development results in syntactic form are as follows.

Problem Orientation. The initial stage in this model is problem orientation. Students are introduced to a problem or case study that is relevant to the learning topic. This problem is designed to trigger students' curiosity and encourage them to find solutions. In this way, students not only receive information passively, but are also actively involved in the learning process from the start. In this activity, it is carried out offline or face-to-face. In this activity, it is carried out offline or face-to-face, so that students have the opportunity to discuss directly, exchange opinions, and develop social and communication skills. This face-to-face interaction allows direct guidance from the teacher, helps students understand the problem more deeply and facilitates collaboration between them, which is very important in building critical and analytical thinking skills (Wisnu et al., 2023).

Research and Exploration. After understanding the problem, students then conduct research to find relevant information. They can use various sources, both online and offline/face-to-face, to collect data and analyze the information. This research activity not only helps students gain new knowledge, but also trains them to think critically and systematically. This research activity not only helps students gain new knowledge, but also trains them to think critically and systematically (Al Shloul et al., 2024). In addition, this process encourages students to become independent learners who can identify, evaluate, and synthesize information effectively. Thus, students not only develop academic skills, but also important life skills, such as problem solving, decision making, and adaptability in dynamic situations

Solution Development. The results of the research are then used to develop potential solutions. Students work in groups to discuss, share ideas, and formulate innovative solutions. They can also create prototypes or simple models of their proposed solutions. This solution development process encourages students to think creatively and collaboratively (Tabbu et al., 2023). In this activity is done online. In this activity is done online, so students have the opportunity to utilize various digital collaboration tools, such as discussion forums, document sharing applications, and design software. The use of this online platform not only facilitates communication and coordination between group members, but also hones their technological skills, which are very relevant in the digital era. By working collaboratively in a virtual environment, students also learn to manage projects effectively, appreciate the role of each member, and adapt to the dynamics of remote work.
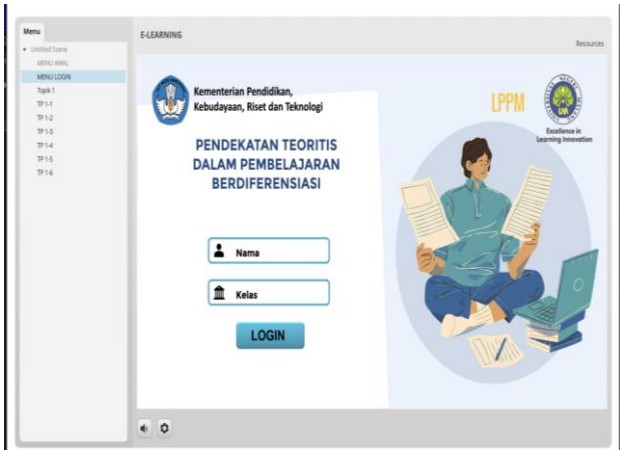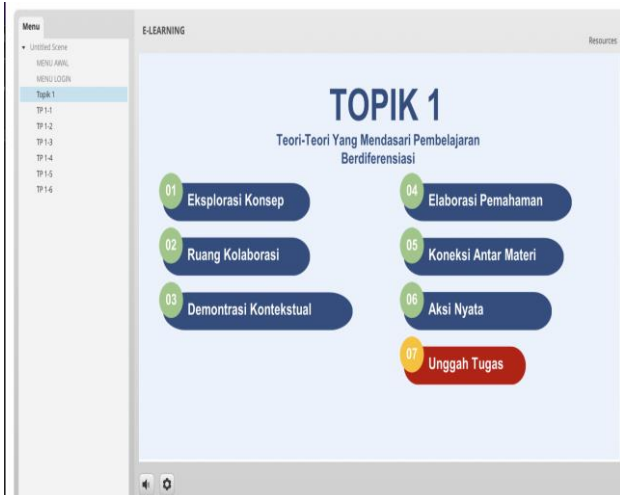
Presentation and Reflection. After formulating a solution, students present their work in front of the class/face-to-face or through an online platform. This presentation provides an opportunity for students to convey their ideas and receive feedback from classmates and instructors (Kumar et al., 2024; Muhria et al., 2023). In addition, students also reflect on the learning process they have gone through. In addition, students also reflect on the learning process they have gone through. This reflection process allows students to evaluate their strengths and weaknesses during the project, as well as identify areas that need to be improved in the future. This reflection also strengthens their understanding of the concepts they have learned, while increasing their ability to learn from experience and plan more effective learning strategies in the future.

Assessment and Follow-up. Assessment in the PBBL model does not only focus on the final results, but also on the learning process. Students are assessed based on their ability to identify problems, find information, develop solutions, and work together in groups. In addition, an assessment is also carried out on the effectiveness of the solutions that have been developed. The results of this assessment are then used as a basis for

carrying out follow-up actions, such as re-discussing the solutions that have been produced or developing better solutions. The results of this assessment are then used as a basis for carrying out follow-up actions, such as re-discussing the solutions that have been produced or developing better solutions. This follow-up process also provides an opportunity for students to improve their skills based on the feedback received (Yong & Tiong, 2022), and improve their understanding of the concepts involved. Thus, assessment serves not only as an evaluation, but also as a continuous learning tool, encouraging students to continue to develop and improve the quality of the solutions they offer.

The Articulate Storyline platform plays an important role in supporting the implementation of this PBBL model. This platform allows the creation of interactive and engaging learning materials, such as simulations, videos, and quizzes. In addition, Articulate Storyline can also be used to facilitate collaboration between students and instructors, as well as to track the progress of student learning that can be accessed anytime and anywhere, with an internet connection. The articulate storyline is as follows.

Table 4. Explanation of articulate storyline display

No	Appearance	Information
1		Initial homepage view
2		Menu View (Contents)
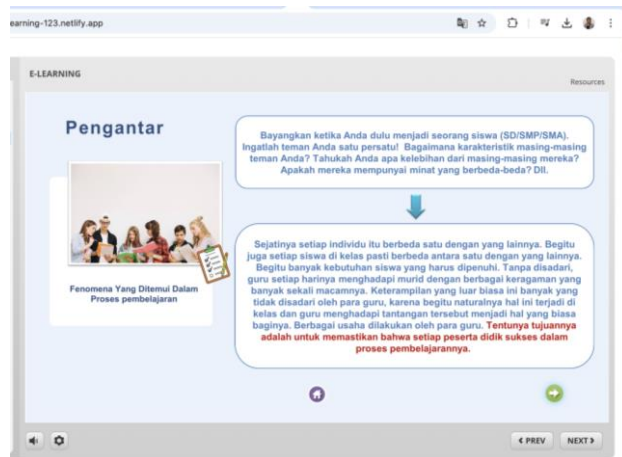
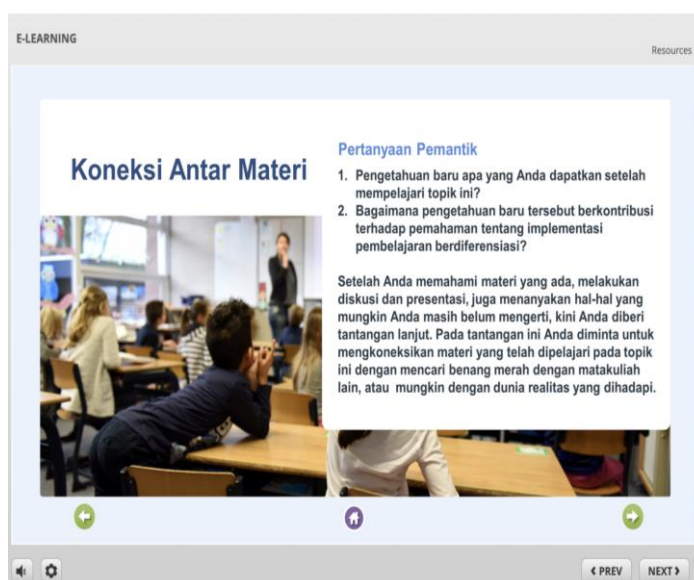| 3 | | Introduction to Material |
| 4 | | Collaboration Space equipped with video |
| 5 | | Contextual Demonstration |

| 6 | | Elaboration of Understanding |

| 7 | | Connections Between Materials |

| 8 | | Real Action |
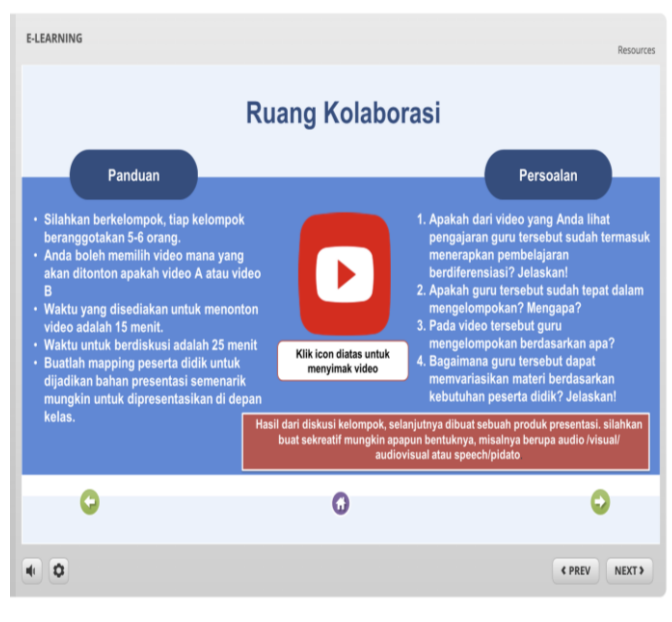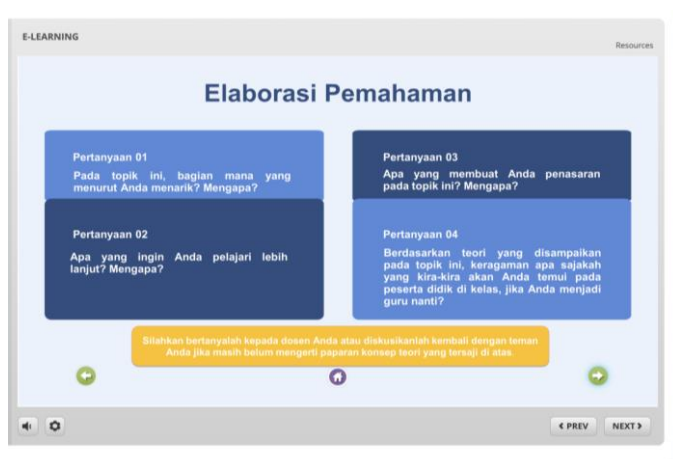
In addition to delivering detailed material, this media also presents supporting elements that lead to improving the quality and productivity of learning. Furthermore, this learning media also displays advantages that have not been found in previous learning media. The advantages in learning media include pop-up menu features, independent student exploration activities, and a combination of actual and factual news. Delivery of superior elements In addition, the media developed also has other advantages, namely the content presented is contextual, allowing students to understand the material by linking it to actual news or events factually. The purpose of presenting these superior elements is to encourage active student participation and provide direct learning experiences in the hope of increasing student motivation and learning achievement.

Next is done learning expert validation and media validation, the aim of which is to assess feasibility. In the development stage, there are stages carried out by researchers, namely development, product validation and validator revision results (Chandramidi, 2022). The following are the scores obtained from learning expert validation and media validation as follows.

Table 5. Results of Media Validation and Material Validation

Validators	Score	Information
Learning Expert Validation	88%	Very Worth It
Media Validation	80%	Very Worth It
Average	84%	Very Worth It

In the validation of material experts, the process was carried out twice because the first result showed that the product developed was not yet feasible for use and required revision. The first validation revealed that there were several aspects that needed to be improved, such as the ineffective online implementation time. Therefore, revisions were made to correct these deficiencies, taking into account the suggestions given by the validator. After the improvements were made, the results of the second validation showed a significant increase, with an average value of 88% which fell into the very valid category. This shows that the learning product developed has met the eligibility criteria in terms of the material presented (Palupi & Dewi, 2023).

Next, expert validation of learning is carried out to test the feasibility of the product in terms of content and learning methods. This validation focuses on whether the product can be used effectively in the learning process and meets the established standards. After revision based on expert advice, the product obtained very positive results, with an average value of 88%, indicating that this product is very valid for use in learning activities. This validation is important because it ensures that the material delivered through digital media is in accordance with the learning objectives to be achieved (Mufidah & Khori, 2021). In addition to material validation, media expert validation was also conducted to test the feasibility of the product in terms of appearance and interaction. At this stage, media experts provide several suggestions to increase the attractiveness of the product, one of which is by varying the content so that it does not only focus on text, but also includes more interesting visual and interactive elements. Based on the results of media expert validation, the product obtained an average value of 80%, which is included in the valid category. Overall, the validation results showed an average value of 84%, which indicates that this product is very feasible to be used in learning, both in terms of the material and the media used.

4. Implementation

The implementation stage, researchers carry out testing *Problem Based Blended Learning (PBBL) assisted by Articulate Storyline* that has been developed On October 15, 2024, a trial is conducted with 17 students from the Pre-Service Teacher Education Program (PPG Prajabatan), who are the users of the developed product, *Problem Based Blended Learning (PBBL) assisted by Articulate Storyline*. This trial aims to assess the product's feasibility in terms of its use by students. Based on the results of the small group questionnaire, the product receives a score of 95 out of the ideal score of 100. This result indicates that the product is highly feasible and can be used without any revisions, thus ready for implementation in the students' learning process. The use of questionnaires in data collection allows for an objective measurement of the product's effectiveness and feasibility, which aligns with previous studies that emphasize the importance of questionnaire evaluations in assessing educational products (Magdalena et al., 2023). The trial activities can be seen in Figure 1.

Figure 1. The trial activities of *Problem Based Blended Learning (PBBL) assisted by Articulate Storyline*

The results of this trial demonstrate that *PBBL assisted by Articulate Storyline* is highly suitable for the learning needs of the students. As a problem-based learning method, PBBL proves effective in enhancing student engagement in the learning process (Nurhasanah et al., 2024). By using interactive media like *Articulate Storyline*, students can engage with the material in a more interesting and applied way. This finding is consistent with previous research indicating that blended learning, which combines online and face-to-face learning, enhances student engagement and the effectiveness of learning (Ramadhani & Asrul, 2024). The use of PBBL allows students not only to understand theories but also to apply the learned concepts in more practical situations that reflect real-world contexts.

Additionally, this trial shows that *PBBL assisted by Articulate Storyline* effectively helps students develop cognitive skills, particularly in problem-solving and the application of learned concepts. The development of cognitive skills through problem-based learning deepens students' understanding of the material and enhances their ability to apply knowledge to more complex situations (Nurhasanah et al., 2024). Therefore, the product is not only focused on delivering content but also on developing critical skills needed for students to address challenges and solve problems. Thus, PBBL assisted by Articulate Storyline can be an effective tool in supporting learning that emphasizes skill development relevant to future needs.

5. Evaluation

Despite the high feasibility results from the trial, several comments and suggestions for improvement are provided by experts, which are important in further enhancing the product's quality. One of the main suggestions from the media expert is to use a brighter background in the exercise questions. This aims to create a more enjoyable and interactive learning atmosphere. This suggestion is crucial as visual elements in learning significantly impact comfort and the effectiveness of the learning process. States that a bright and engaging background can improve visual appeal, which in turn helps enhance focus and attention during learning (Zulkhaeriyah et al., 2024). Therefore, implementing this suggestion will have a positive impact on the user experience.

In addition, experts also suggest increasing the interactive elements within the product. Although the product is already quite good, there is room for enhancing interactivity, which can enrich the learning experience for students. Interactive elements such as immediate feedback, deeper simulations, and gamified learning can increase student participation and help them understand the material more comprehensively (Nurhasanah et al., 2024). The use of technology in education that prioritizes interactivity can help create a dynamic and enjoyable learning environment, encouraging students to be more actively involved in the learning process. Therefore, the product's development should focus on integrating more diverse and innovative features that promote interactivity.

With the various comments and suggestions provided, further development can be done to ensure that the product is not only feasible but also provides an optimal learning experience for students. As technology continues to evolve and educational needs change, it is essential to continue innovating in educational products. This product, which has proven to be effective and feasible through positive trial results, is expected to be continually improved and introduced to more educational institutions to support more interactive and problem-based learning processes. Technological innovation in education not only enhances learning quality but also fosters an education ecosystem that is more adaptive and responsive to the challenges of modern times (Haleem et al., 2022). Therefore, the development of this product must consider existing feedback to ensure that it maximizes benefits for its users.

Thus, the development of PBBL assisted by Articulate Storyline is not only focused on the technical aspects of the product but also on the user experience and overall improvement in learning quality. It is hoped that this product can serve as a model for the development of other technology-based learning tools that can be applied at various educational levels. The success of this trial provides evidence that PBBL with the aid of technology can optimize the learning process, enhance student engagement, and improve their understanding of the material. Therefore, the product should continue to be refined and developed to meet the needs and expectations of future users.

CONCLUSION

This study produces a *Problem-Based Blended Learning (PBBL) model assisted by Articulate Storyline,* which has undergone validation by learning and media design experts with very valid/feasible results. Based on the results of the small group trial, the model receives a score of 95 out of the ideal score of 100, indicating that the product is highly feasible for use without revisions. This shows that the PBBL-based learning media with *Articulate Storyline* support is effective in supporting problem-based learning, with quality that meets the eligibility standards to enhance the quality of the learning

experience, particularly in helping students develop critical thinking and problem-solving skills in a more interactive and comprehensive manner.

REFRENCES

Al Shloul, T., Mazhar, T., Abbas, Q., Iqbal, M., Ghadi, Y. Y., Shahzad, T., Mallek, F., & Hamam, H. (2024). Role of activity-based learning and ChatGPT on students' performance in education. Computers and Education: Artificial Intelligence, 6, 100219. https://doi.org/10.1016/j.caeai.2024.100219

Andini, Y. T., & Wahyuningsih, R. (2021). Pendampingan Dan Pemberdayaan Masyarakat Sebagai Tutor Baca Tulis Al-Qur'an Dengan Media Flashcard Pada Siswa Era Covid-19 Di Dusun Maron Desa Genteng Kulon. Jurnal Pengabdian Kepada Masyarakat) |, 4 No.2, 184–198. http://ejournal.iaiibrahimy.ac.id/index.php/Abdi_Kami

Basri, H. (2023). Implementasi Kurikulum Merdeka Belajar Pada Pelajaran Akidah Akhlak Di Mts Negeri 1 Yogyakarta. Muróbbî: Jurnal Ilmu Pendidikan, 7(1), 34–48. https://doi.org/10.52431/murobbi.v7i1.1486

Chandramidi, M. (2022). Pengembangan Model Pembelajaran Problem Based Learning Berbasis Aplikasi Tracker Untuk Meningkatkan Pemahaman Konsep Fisika. Journal of Learning and Technology, 1(2), 51–62. https://doi.org/10.33830/jlt.v1i2.4174

Dewantara, D., Wati, M., Mahtari, S., & Haryandi, S. (2020). Blended Learning to Improve Learning Outcomes in Digital Electronics Courses.

Habibah, F. N., Setiadi, D., Bahri, S., & Jamaluddin, J. (2022). Pengaruh Model Problem Based Learning berbasis Blended Learning terhadap Keterampilan Berpikir Kritis Peserta Didik Kelas XI di SMAN 2 Mataram. Jurnal Ilmiah Profesi Pendidikan, 7(2b), 686–692. https://doi.org/10.29303/jipp.v7i2b.603

Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. Sustainable Operations and Computers, 3, 275–285. https://doi.org/10.1016/j.susoc.2022.05.004

Juhaeni, J., Safaruddin, S., & Salsabila, Z. P. (2021). Articulate Storyline Sebagai Media Pembelajaran Interaktif Untuk Peserta Didik Madrasah Ibtidaiyah. AULADUNA: Jurnal Pendidikan Dasar Islam, 8(2), 150. https://doi.org/10.24252/auladuna.v8i2a3.2021

Kumar, C., Rangappa, K. B., Suchitra, S., & Gowda, H. (2024). Digital distractions during blended learning and its negative repercussions: an empirical analysis. Asian Association of Open Universities Journal, 19(1), 1–18. https://doi.org/10.1108/AAOUJ-02-2023-0024

Kurniawan, S. J., & Rahman, F. A. (2019). Implementation of Deep Dialogue/Critical Thinking in Guidance and Counseling Services: Critical Role Solutions Improve Thingking Skills on Z Generation. Social, Humanities, and Educational Studies (SHEs): Conference Series, 2(2), 47. https://doi.org/10.20961/shes.v2i2.38545

Magdalena, I., Hidayati, N., Dewi, R. H., Septiara, S. W., & Maulida, Z. (2023). Pentingnya Evaluasi dalam Proses Pembelajaran dan Akibat Memanipulasinya. MASALIQ, 3(5), 810–823. https://doi.org/10.58578/masaliq.v3i5.1379

Mufidah, E., & Khori, N. (2021). Pengembangan Media Pembelajaran Articulate Storyline untuk Meningkatkan Hasil Belajar Siswa Sekolah Dasar di Masa Pandemi Covid 19. IBTIDA', 2(2), 124–132. https://doi.org/10.37850/ibtida.v2i2.214

Muhria, L., Supriatna, N., & Nurfirdaus, N. (2023). Students' Challenges of Blended Learning Model in Higher Education. Journal Corner of Education, Linguistics, and Literature, 2(3), 223–233. https://doi.org/10.54012/jcell.v2i3.123

Nugraha, I. A., Normansyah, A. D., & Cahyono. (2023). Pengaruh Literasi Digital Terhadap Keterampilan Berpikir Kritis Peserta Didik Pada Mata Pelajaran Pendidikan Pancasila Dan Kewarganegaraan (PPKn). Triwikrama: Jurnal Ilmu Sosial, 5 No.1.

Nurhasanah, M., Suprapto, P. K., & Ardiansyah, R. (2024). The Effectiveness of Problem-Based Learning Assisted by Articulate Storyline Interactive Students' Critical Thinking Skills. Jurnal Inovasi Pendidikan IPA, 10(1), 1–9. https://doi.org/10.21831/jipi.v10i1.64847

Palupi, R. M., & Dewi, K. P. (2023). Lectura: Jurnal Pendidikan Pengembangan Ensikopedia Negeriku : Rumah Adat Nusantara Berbasis Indigenous Knowledge untuk Meningkatkan Literasi Budaya bagi Siswa Kelas IV Sekolah Dasar. Lectura: Jurnal Pendidikan, 14 No.1. https://doi.org/https://journal.unilak.ac.id/index.php/lectura/aboutthejournal

Ramadhani, I. A., & Asrul, A. (2024). Development of Interactive Learning Media Based on Articulate Storyline to Improve Student' Science Literacy. Lectura : Jurnal Pendidikan, 15(2), 533–545. https://doi.org/10.31849/lectura.v15i2.20974

Sa'diyah, H., Umalihayati, Hidayah. Ratna, Salimi, M., Fajari, L. E. W., Mashudi, & Aini, S. (2024). The Effect of Problem Based Learning Model on Critical Thinking Skills in Elementary School: A Meta Analysis Study. Jurnal Iqra' : Kajian Ilmu Pendidikan, 9(1), 135–160. https://doi.org/10.25217/ji.v9i1.4456

Selsabila, V., & Pramudiani, P. (2022). Pengembangan Media Pembelajaran Interaktif Articulate Storyline Berbasis Literasi Digital Pada Pembelajaran IPS bagi Siswa Madrasah Ibtidaiyah Negeri. Jurnal Paedagogy, 9(3), 458. https://doi.org/10.33394/jp.v9i3.5372

Setyaningsih, S., Rusijono, R., & Wahyudi, A. (2020). Pengaruh Penggunaan Media Pembelajaran Interaktif Berbasis Articulate Storyline Terhadap Motivasi Belajar dan Hasil Belajar Siswa Pada Materi Kerajaan Hindu Budha di Indonesia. Didaktis: Jurnal Pendidikan Dan Ilmu Pengetahuan, 20(2). https://doi.org/10.30651/didaktis.v20i2.4772

SP, F. J. E. (2022). Pengaruh Pembelajaran Digital terhadap Motivasi Belajar dan Hasil Belajar Siswa di Era Pandemi Covid-19. Edunusa: Journal of Economics and Business Education. https://journal.inspirasi.or.id/index.php/edunusa

Sriyanto, B. (2021). Meningkatkan Keterampilan 4c dengan Literasi Digital di SMP Negeri 1 Sidoharjo. Jurnal Didaktika Pendidikan Dasar, 5(1), 125–142. https://doi.org/10.26811/didaktika.v5i1.291

Syabri, K. I., & Elfizon, E. (2020). Pengembangan Media Pembelajaran Menggunakan Software Articulate Storyline pada Pembelajaran Dasar Listrik Elektronika. Jurnal Pendidikan Teknik Elektro, 1(1), 95–99. https://doi.org/10.24036/jpte.v1i1.43

Tabbu, M. A. S., Syarif, E., & R, S. M. M. (2023). Blended Problem Based Learning: Bagaimana Pengaruhnya Terhadap Kemampuan Berpikir Kritis Mahasiswa dalam Pembelajaran Geografi? Jurnal MediaTIK: Jurnal Media Pendidikan Teknik Informatika Dan Komputer, 6(3), 138–143.

Wisnu, D. A., Sekolah, W., Hindu, T., Klaten, D., & Tengah, J. (2023). Problem Based Learning: Membuka Peluang Kolaborasi Dan Pengembangan Skill Siswa. Jawa Dwipa Jurnal Penelitian Dan Penjaminan Mutu, 4 No.1.

Yong, S. T., & Tiong, K. M. (2022). A Blended Learning Approach. International Journal of Information and Communication Technology Education, 18(1), 1–16. https://doi.org/10.4018/IJICTE.301276

Zulkhaeriyah, Pujiati, T., ZA, D. R., Ningsih, S., Romadlani, M. M. I., & Putra, S. N. W. (2024). Evaluating the Impact of Interactive Learning Platforms on Student Engagement and Performance: A Case Study of Quizizz in Higher Education. 2024 3rd International Conference on Creative Communication and Innovative Technology (ICCIT), 1–6. https://doi.org/10.1109/ICCIT62134.2024.10701141