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Development of ABEL KERINDO Interactive Multimedia based on *Articulate Storyline* to Learn Social Science for Alpha Generation Students in Elementary School

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Abstract

Minimizing the use of technology-based interactive multimedia in social science learning reduces the interest and learning outcomes of alpha-generation students. Research and development (R&D) design with a waterfall development model, which includes requirements, design, Implementation, verification, and maintenance phases, is used in this research. Developing interactive multimedia product ABEL KERINDO "Ayo Belajar Kerajaan di Indonesia" based on *Articulate Storyline* to probe its eligibility and effectivity becomes the purpose of this research. From the validation results, this product is considered highly qualified, with a material expert rating of 96.25 percent, a media expert of 93.75 percent, teacher 100 percent, and student participant 98 percent, which yields an average score of 97%. This multimedia can significantly improve the learning outcome for fourth-grade students of SD Kanisius Beringin Semarang, with the difference between the pretest-posttest ratio of 23.75 and the N-gain ratio of 0.545, which belongs to moderate criteria. Students' interest in learning also increased from 66 percent to 80 percent, indicating the product's effectiveness in increasing engagement and learning outcomes. Overall, the product can be considered highly eligible and effective for enhancing the interest and learning outcomes of alpha-generation students.

Keywords: Interactive Multimedia; Alpha Generation; Social Science; *Articulate Storyline*

INTRODUCTION

The advent of the Industrial Revolution 4.0 has fundamentally Highy reshaped how technology is perceived and utilized in daily life, necessitating a high level of adaptability and innovation in information and communication technology to enhance the quality of life and maintain global competitiveness (Mardhiyah R.H. et al., 2021). This technological shift has had profound effects across various sectors, with education being particularly impacted (Amelia, U., 2023). As we progress further into the 21st century, the Indonesian education system must play a pivotal role in preparing future generations to be superior in an increasingly interconnected and technology-driven world (Indrata, Y. et al, 2023, Puspa. C. I. S. et al, 2023)

One of the generations that is prepared to be able to compete in this all-digital era is the alpha generation. This generation was born after 2010 (McCrindle, M., 2021, Tafonao, et al., 2020), known as the true 21st-century generation (Prismanata, Y., & Sari, D. T., 2022) due to their high ability to access digital technology (Ziatdinov, R., & Cilliers, J., 2022) and grew up in an environment surrounded by digital devices such as *smartphones* and laptops (Yusuf, F.A., 2023, Alfath, N., 2024). Research conducted by Omar, Aziz, & Abd Muin (2021) shows that

digital technology affects all aspects of their lives, including the way they learn. This generation tends to be individualistic, less focused, and prefers instant or practical learning, ignoring the more in-depth learning process (Prismanata, Y., & Sari, D. T., Timothyus, H. & Purba, N.D. 2023). This makes it necessary to have an educational approach that is based on the characteristics of students.

Social science subjects are an important part of equipping the alpha generation to be able to face various challenges in the digital era. Branches of science such as history, geography, sociology, and anthropology listed in social science learning (Hidayat, A. Y., et al., 2022, Kusmiati, E., et al. 2021) aim to create a superior generation with a character who can think positively, critically and solve social problems that occur in society (Marsendi, F. et al., 2024, Kusuma. D & Ahmadi F. 2024). This learning is designed to enhance individuals' knowledge, skills, and social attitudes to better address diverse challenges in all areas of community life(Anissi, R. A., & Darmansyah, 2024). In the context of learning in Indonesia, science and social science lessons are currently simplified into science and social science subjects that are integrated into an independent curriculum at the basic education level (Head of the Curriculum Standards and Education Assessment Agency, 2022).

Social science learning is often synonymous with memorization and a lot of material and uses conventional methods such as discourse. This causes students to have difficulty understanding concepts and feel that social science lessons are uninteresting. (Sari, D. P. P., et al, 2021). This claim reinforced a survey conducted by Suroiya (2021), which found that 85% of students view social science as unimportant, burdensome due to memorization, and boring. Additionally, 50% of teachers still use conventional teaching methods in social science and do not recognize the importance of using learning media. Consequently, student engagement is low, leading to a decline in learning outcomes.

The problem still exists to this day. Evidence from the results of observations and interviews in the fourth grade of SD Kanisius Beringin found that the students faced difficulties in studying social science, especially the history of the kingdom of Indonesia. The daily test data for the fourth-grade class obtained from observations shows that only 11 out of 32 students (34%) achieved the complete category, while 21 students (66%) have not reached the passing score, which is 70. This problem stems from material that requires a lot of memorization and the use of foreign languages, such as the names of characters and relics of the kingdom, which makes it difficult to understand. Throughout the learning process, students appear to be less enthusiastic, and their participation is notably low. This issue primarily arises from teachers continuing to use traditional teaching methods, such as lectures, which create one-way interactions and lead to student boredom. Besides, teachers have not yet made use of technology-based learning media, and the learning resources used are limited only to package books. This underscores the requirement for technology-based learning media to stimulate students' enthusiasm and interest in social science.

The selection in the use of learning media must be adjusted to the learning needs and characteristics of students. Students in Grade IV of SD Kanisius Beringin are classified as the alpha generation because they were born after 2010 (McCrindle, M., 2021, Tafonao, et al, 2020) and their cognitive development phase is at the concrete operational stage because they are at the age of 7-12 years where they are more effective at learning through direct experience and

manipulation of concrete objects (Rizqiyati, et al, 2023, Putri, et al, 2024). Therefore, teachers need to utilize multimedia that involves various communication methods to provide various stimuli, so that more sensory tools are used by students to receive and process information. By using the right multimedia, the information received will be easier for students to understand and remember (Suseno P. U., et al, 2020). In line with this, software is needed that can design innovative and interactive multimedia, one of which is *Articulate Storyline*.

Articulate Storyline is a simple, intelligent program that offers interactive tutorials that can help users create various projects such as websites or *HTML5*, CDs, and *Learning Management Systems* (LMS) (Hidayah, N. et al, 2023, Moriska, A & Hanif, M., 2024). This *software* is an interactive multimedia device that offers various *tools* to combine text, images, audio, video, animation, and graphics, thus creating interesting learning media for students (Chaeruna, T. et al 2024, Toni et al). One of the advantages of this *software* is its interactive interface that is available both online and offline and allows for independent or group use (Halimah, I. N., & Indriani, F., 2021).

It has been found in earlier science that multimedia developed with *Articulate Storyline* is effective in improving student motivation, interest, and learning outcomes. For example, Setyaningsih (2020) reported that the use of this media increased the motivation and learning outcomes of grade IV students by up to 70%. Another study by Aulia, A. & Masniladevi, M. (2021) stated that multimedia based *on Articulate Storyline* has proven to be valid and practical in increasing students' interest in learning. Sari R.K. & Harjono, N. (2021) also concluded that this media is appropriate for helping teachers present learning materials. This media also plays a significant role in increasing students' enthusiasm for learning activities. Overall, the use of *Articulate Storyline* in learning has proven to be beneficial for improving the teaching and learning process.

Although there are previous science that have shown the effectiveness of the use of interactive multimedia made using *Articulate Storyline* in particular learning contexts, there is still no research that focuses on and applies it in social science learning of the history of the kingdom in Indonesia material, especially for alpha generation students in elementary schools. That makes ABEL KERINDO's interactive multimedia "Ayo Belajar Kerajaan di Indonesia" based on *Articulate Storyline* to increase the interest and learning outcomes of alpha generation students in Class IV of SD Kanisius Beringin in social science subjects, especially the history of the kingdom in Indonesia. This product includes material on Hindu kingdoms, Buddhism, Islam, and how to preserve historical relics, and is equipped with practice questions to test understanding. This research aims to develop ABEL KERINDO's interactive multimedia " Ayo Belajar Kerajaan di Indonesia " based on *the Articulate Storyline that* will be tested for validity, feasibility, and effectiveness.

METHOD

Based on the problems that occur in the field, this research uses research and development *(R&D)*methods to develop ABEL KERINDO Interactive Multimedia products based on *Articulate Storyline*. The goal is to test the feasibility and effectiveness of the product (Budayat, B., Rejeki, E. S., & Sukisno, S., 2023). For the development process, the Waterfall model was chosen, making it a suitable approach for software like *Articulate Storyline*. This process consists

of five phases: (1) Requirements, (2) Design, (3) Implementation, (4) Verification, and (5) Maintenance.(Anggul, I. S., 2021, Sallu, S., et al., 2023). During the implementation phase, the product is finalized and undergoes testing. In the verification phase, it is evaluated by media experts, material experts, teachers, and a small group of students, with revisions made based on their feedback. The final phase, *Maintenance*, allows the product to be used on a large scale after verification.

Participants

This study requires the involvement of experts to assess the validity of the product, particularly material and media experts. A material expert is a lecturer who masters the characteristics of social science learning in elementary school, while a media expert is a lecturer in educational technology. In addition, this study also involved homeroom teachers, 8 small-scale students, and 24 large-scale students in class IV in product feasibility and product effectiveness tests.

Data Acquisition Techniques

Data collection involved both test techniques and non-test methods. The test techniques taken in this study are the implementation of pretest and posttest to measure the effectiveness of the product, while the test techniques taken are in the form of interview results, needs questionnaires, media feasibility validation test questionnaires, media user response questionnaires, and student learning interest questionnaires before and after using the media. The product feasibility test questionnaire instrument used has been validated by the lecturer.

Table 1. Material Expert Assessment Instrument Grid

No.	Aspect	Indicator
1.	Suitability of material content	The material's suitability is evaluated based on its alignment with learning topics, outcomes, objectives, competencies achieved, and the learning evaluation.
2.	Language eligibility	Appropriateness of the language by PUEBI rules and easy to understand by teachers and students.
3.	Suitability of material display	Appropriateness of images, videos, font formats, and instructions in explaining the material.

Table 2. Media Expert Assessment Instrument Grid

No.	Aspect	Indicator
1.	Material	The title's relevance to the material, the clarity of learning achievements and objectives, and the alignment of images and videos with the content.
2.	Appearance	Display design quality includes font, readability, color combinations, image/video clarity, menu placement, and quiz operation ease.
3.	Application	Learning media is easy to use by teachers and students

Table 3. Questionnaire Instrument Grid for Teacher and Student Responses to the Media

No.	Aspect	Indicator
1.	Display Media and technical quality	Appearance and usage instructions media
2.	Presentation of material content	Influence of media material on students

Table 4. Instrument Grid for Learning Interest Questionnaire on Media Use

Aspect	Indicator
Learning Interest	Interest in Learning
	Feeling of Pleasure
	Attention in learning
	Engagement in learning

Data Analysis Techniques

In this study, data analysis using descriptive methods from both qualitative and quantitative perspectives. Qualitative description analysis is related to suggestions or comments related to the media, while quantitative description analysis is related to the results of questionnaire data and *pretest-posttest results.*

The percentage of product feasibility validation test questionnaire data, product use feasibility test (teacher and student response), and learning interest can be calculated using the following formula (Aulia, A. & Masniladevi, M, 2021):

$$NP= \frac{R}{SM} X100\% ... (1)$$

Information:

NP : the percentage of value sought.

R : Score data obtained

BC : ideal maximum score

For decision-making from the percentage of product feasibility validation questionnaire data, it is guided by the media feasibility conversion table:

Table 5. Criteria and Categories of Product Feasibility Validation Results

Criteria	Category
86%-100%,	Highly Worthy
76%-85%,	Proper
60%-75%	Quite Decent
55%-59%	Less Worthy
≤ 54%.	Not Eligible

Source : Aulia, A. & Masniladevi, M. (2021).

Table 6. Criteria and Categories of Learning Interest Questionnaire Results

Criteria	Category
88% < NP ≤ 100%,	Very High
70% < NP ≤ 88%,	High
54% < NP ≤ 70%	Moderate
36% < NP ≤ 54%	Low
NP≤ 36%.	Very Low

Source : Hidayati, S. A., & Sudarti, S. (2022) modified

The data from *the Pretest-Posttest* results were analyzed to determine the effectiveness of the use of interactive multimedia of ABEL KERINDO based *on Articulate Storyline* in increasing the interest and learning outcomes of alpha generation students in grade IV of social science subject about the history of the kingdom of Indonesia. The data was processed using the SPSS

ver.26 application. The measurement of the effectiveness of media use is seen from the results of data processing of N-gain values from *pretest-posttest data*. In calculating the N-gain score, the following formula is used (Bustanil et al, 2019):

$$\text{N-Gain} = \frac{Tpost - Tpre}{Tmaks - Tpre} \ldots . (2)$$

Information:
Tpost : Average score *posttest*
Tpre : Average score *pretest*
Tmax : Maximum ideal value

The N-gain score obtained above can be categorized using the gain score interpretation table below.

Table 7. N-Gain Criteria and Categories

N-gain (g)	Category
(g) > 0.7	High
0.3 < (g) ≤ 0.7	Moderate
(g) ≤ 0.3	Low

Source : Bustanil S, M., et al. (2019)

RESULTS AND DISCUSSION

Result

This product is an interactive multimedia ABEL KERINDO created with *Articulate Storyline* developed using a *waterfall* development model that has 5 phases as follows:

1. *Requirements*

At this phase, researchers conduct observations and interviews to analyze the problem. Based on preliminary findings, additional data on user needs is needed. From 25 questions on the inquiry instrument, the following data was obtained:

a. Social science learning needs are a product that lists achievement and purpose according to an independent curriculum, relevant material about the history of the Indonesian kingdom, and quiz features to test the understanding of the material.
b. The needs of students and teachers include easily accessible products that align with the characteristics of the Alpha generation and enhance two-way interaction in the learning process.
c. Multimedia display requirements include bright background colors, relevant and clear text, moderate font size, suitable images and videos of material, as well as audio and animation that is interesting to learners.

2. *Design*

The results of the data analysis in the previous stage are then translated into designing interface and system flow designs. To facilitate the development of ABEL KERINDO's interactive multimedia system based *on Articulate Storyline*, the researcher used Use Case

diagrams and navigation structures. The display design was created with the *Canva* app, while the implementation of the button function was done using *Articulate Storyline*.

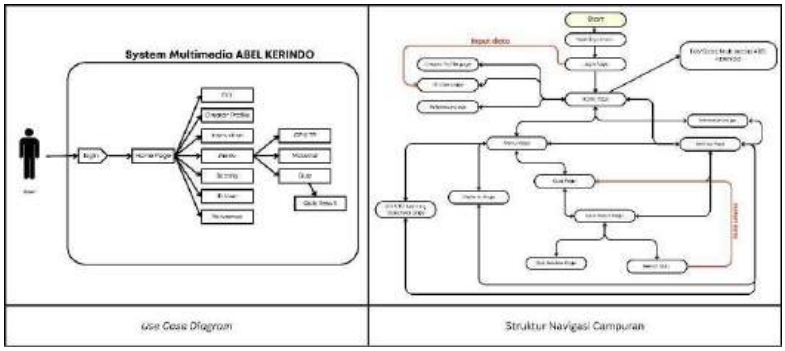

Figure 1. Use Case Diagram and Structure of ABEL KERINDO Interactive Multimedia Navigation Based *on Articulate Storyline*

a. *Use* Case diagram

Use Case diagrams function to represent the behavior or interaction that occurs between the user and the system (Mustafa, S. R., & Bakar, A., 2023). *The Use Case diagram* of ABEL KERINDO Interactive Multimedia developed with *Articulate Storyline* is illustrated in Figure 2.

b. Navigation structure

This structure serves to determine the flow of the system and helps organize all elements in the system being run (Maulana, A. et al., 2020) The navigation structure in this study consists of hierarchical and non-linear structures or mixed navigation structures (Hanif, A., 2021). Figure 2. The Mixed Navigation Structure section shows the system workflow in ABEL KERINDO's interactive multimedia.For example, if a user will access a material page, the system access flow starts from, (1) the opening page; (2) enter personal data and click the "login" navigation; (3) display the home page and sort out the "start" navigation; (4) display the menu page and select the navigation "ABEL KERINDO material"; and (5) display the material page. Almost all pages have navigation to go to the settings page except the creator profile page, user identity page, and reference page, while if the user chooses to navigate out then the system will close the ABEL KERINDO interactive multimedia.

c. Interface Design

This design shown in Figure 2 is a display design when users access ABEL KERINDO's interactive multimedia.

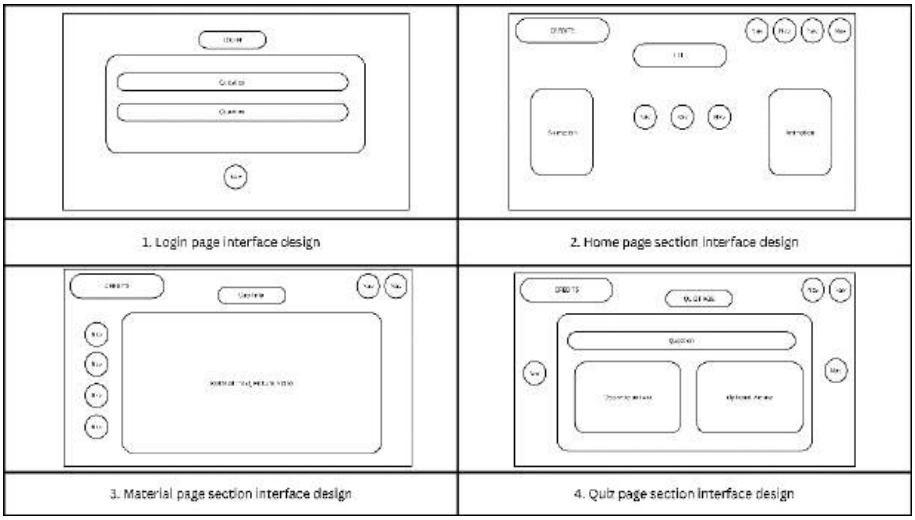

Figure 2. ABEL KERINDO Interactive Multimedia interface design

3. *Implementation*

This stage is the implementation of ABEL KERINDO's interactive multimedia creation, starting from the creation of background pages, materials in the form of text, animations, images, audio, and video, programming navigation buttons by providing *triggers* so that one page and the other can be connected.

Figure 3. Implementation of ABEL KERINDO Interactive Multimedia Design

Figure 3 shows the display results of the ABEL KERINDO interactive multimedia design, developed with *Articulate Storyline*. In this phase, the entire project is published in HTML5 format and tested using the black box method to determine whether the actual results align with the system's design specifications.

Table 8. ABEL *KERINDO Interactive Multimedia* blackbox test

Event	Process	Expected results on the gadget screen	Testing
Open Interactive Multimedia HTML links	*when.link.click*	Displays the welcome page and audio.	Appropriate
Tap "in" navigation	*when. BtnLogin.click*	Displays "Home Page" and background music stays on	Appropriate
The "start" navigation on the home page is tapped	*when. BtnMulai.klik*	Displays the "Menu Page" and the background music stays on.	Appropriate
Navigate "ABEL KERINDO MATERIAL" on the tap menu page	*when. BtnMaterABEL KERINDO.klik*	Displays "ABEL KERINDO Material Page" and background music stays on.	Appropriate
Navigate "QUIZ ABEL KERINDO" on the tap menu page	*when. BtnMaterABEL KERINDO.klik*	Displays "ABEL KERINDO Quiz Page" and background music stays on.	Appropriate
Navigation "Done" on the last page of the quiz is tapped	*when. BtnDone.click*	Displays the "Quiz Results Page" and background music stays on	Appropriate
Navigate to "Review quiz" on the Quiz results page tapped	*when. BtnReviewQuiz. click*	Displays a "Quiz Page" with a quiz discussion and background music stays on.	Appropriate
"Repeat quiz" navigation on the Quiz results page tapped	*when. BtnRepeatQuiz. click*	Displays the "Quiz Page" that has been repeated and the background music stays on.	Appropriate
Navigate "Exit" on the home page tapped	*when. BtnExit.click*	Close ABEL KERINDO Interactive Multimedia	Appropriate

4. *Verification*

In this phase, product validation tests are conducted by media experts and material experts, while product practicality tests are performed by teachers and eight students (small-scale tests). Products of Interactive Multimedia ABEL KERINDO based on *Articulate Storyline* are accessible through a website link that can be accessed using a smartphone or laptop connected to the Internet.

Table 9. Percentage of Validity Test Results for Feasibility and Product Use

It	Participants	Score Percentage	Information
1.	(Validity) Media Members	93,75%	Highly Worthy
2.	(Validity) Material Expert	96,25%	Highly Worthy
3.	(Use) Teacher	100%	Highly Worthy
4.	(Use) Students	98%	Highly Worthy
	Average score	97%	Highly Worthy

In table 9. The results of the product validation test by experts, along with the product use validation test by teachers and students, showed that the Interactive Multimedia ABEL KERINDO, developed using *Articulate Storyline*, with an average score of 97%, already fell into the category of highly qualified, even though revisions were needed for the audio, images, and buttons based on the expert validator's recommendations.

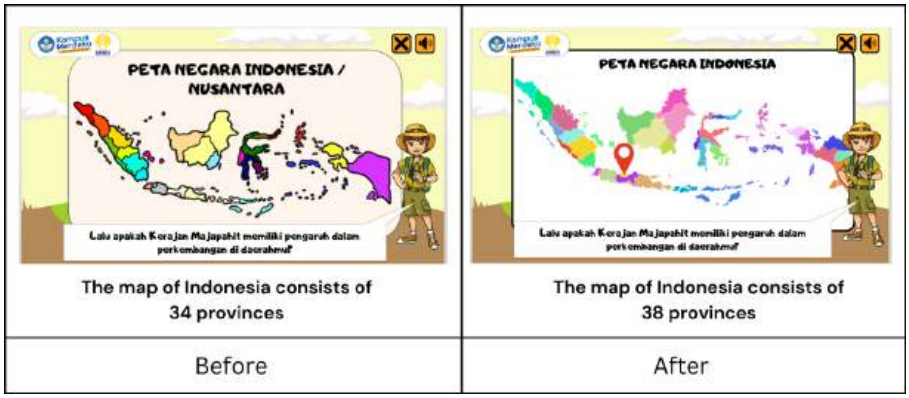

Figure 4. Results Before and After Revision of ABEL KERINDO Interactive Multimedia

When the revision process is complete, the product will be tested in a small-scale learning environment with eight students to assess its validity. The use of Interactive Multimedia ABEL KERINDO, based on *Articulate Storyline*, falls into the category of highly eligible for use in Social Science learning activities, particularly for teaching the history of Indonesian kingdoms.

5. *Maintenance*

At this phase, ABEL KERINDO interactive multimedia operations based on *Articulate Storyline* were carried out on a large scale of social science learning about the history of the kingdom of Indonesia materials. Researchers continuously monitored for any barriers in the learning process during the product's operation. During this phase, twenty-four students participated. To determine the product's effectiveness, pretests and posttests were conducted. The following are the results of students' learning before and after using the Interactive Multimedia ABEL KERINDO:

Table 10. Average Learning Outcomes and Large-Scale N-Gain Outcome Score

Action	Average	Highest score	Lowest score	Average difference	N-gain	Category
Pretest	56,46	75	35	23,75	0,545	Moderate
Posttest	80,21	100	60			

According to Table 10, there is an average increase of 23.75 in learning outcomes. These results demonstrate that the Interactive Multimedia ABEL KERINDO, developed using *Articulate Storyline*, can enhance learning outcomes for the social science material on the History of the Kingdom. The data, processed using SPSS version 26, assessed the product's effectiveness as indicated by the n-gain calculations. With an n-gain score of 0. 545, the Interactive Multimedia ABEL KERINDO, based on *Articulate Storyline*, is evaluated as moderately effective in improving student learning outcomes. Additionally, student interest in the social science material on the history of the Indonesian kingdom is evident from their engagement with the Interactive Multimedia ABEL KERINDO.

Table 11. Data on the Results of the Student Learning Interest Questionnaire on ABEL KERINDO interactive multimedia

No	Indicator	Percentage Before	Category	Percentage after	Category
1.	Interest in Learning (curiosity)	68%	Moderate	82%	High
2.	Feeling of Pleasure (enjoyment)	66%	Moderate	79%	High
3.	Attention in learning	67%	Moderate	79%	High
4.	Engagement in learning (participation)	63%	Moderate	80%	High
	Average score	66%	Moderate	80%	High

Based on Table 11, it can be stated that there is an increase in interest in learning social science material on the history of the kingdom of Indonesia after the use of interactive multimedia ABEL KERINDO *Articulate Storyline*.

Discussion

The development of the interactive multimedia ABEL KERINDO using *Articulate Storyline* has shown significant success in supporting social science, particularly on the topic of the history of kingdoms in Indonesia. This success is influenced by several factors. First, the interactive multimedia of ABEL KERINDO is designed according to the characteristics of Generation Alpha, making it highly suitable. The validity of the product in terms of content suitability, language, and presentation structure, as assessed by material experts, reached 96.25%, placing this multimedia in the very feasible category. Product adjustment to the needs and characteristics of learning and learners also supports its effectiveness. This supports the statement by Kusuma & Ahmadi (2023) that interactive media developed based on the characteristics of learners can enhance the effectiveness and efficiency of learning. In addition, interactive media is considered effective when its use aligns with the content and learning objectives (Tafonao et al., 2020). Furthermore, interactive multimedia can also harmonize perceptions related to the concepts of the material (Tafonao et al., 2020), it is hoped that ABEL KERINDO can assist students in building a consistent understanding of the abstract and broad material of the history of kingdoms. The material presented in this interactive multimedia can spark students' curiosity, and stimulate physical and emotional reactions, making learning more vibrant and less monotonous. (Tafonao, et al., 2020). The use of *Articulate Storyline* in ABEL KERINDO creates a dynamic and interactive learning atmosphere, in line with the view of (Noradilah et al. 2022) that technology in education can enhance creative thinking and student engagement.

Secondly, the application of technology such as the interactive multimedia ABEL KERINDO in learning has been proven to enhance creative thinking and create an engaging learning environment (Noradilah et al., 2022). Furthermore, this interactive multimedia also has the potential to improve critical thinking skills, as well as encourage the frequency and enthusiasm for student learning. (Nur Majid & Rasid, 2020). The results of the validity assessment of the product's feasibility by media experts, which includes aspects of design, content material, and its application in the learning process, indicate that ABEL KERINDO is highly suitable for use with a score of 93.75%. This validation confirms that the design, content material, and application of the interactive multimedia are very appropriate for social science learning. The packaging of the

material through a combination of bright colors, simple text, animations, images, audio, and short videos significantly contributes to the appeal and ease of understanding for the learners. (Ghai & Tendon, 2022). ABEL KERINDO, as a product of advanced technology, is also very suitable for the alpha generation, who are more familiar with animation media, digital videos, and other technologies. (Adillah et al., 2023). In addition, the quiz feature included in this multimedia effectively serves to evaluate students' understanding and provide immediate feedback for improvement. (Halimah & Indriani, 2021).

Thirdly, the ease of use of the interactive multimedia ABEL KERINDO is one of its key advantages in learning. ABEL KERINDO developed by *Articulate Storyline* can be accessed online via an HTML5 link, allowing students and teachers to use it on various devices (Halimah & Indriani, 2021). Feedback from teachers and students regarding the feasibility of the product is supported and is assessed based on the quality of material presentation and ease of media operation. Teachers gave a perfect score of 100%, while students in a small-scale trial gave a score of 98%, both indicating that ABEL KERINDO is very suitable for social science, especially on the topic of the history of kingdoms in Indonesia. The positive responses from students also highlight the media's effectiveness in promoting independent learning, as the material is well-organized and accessible on mobile devices. Furthermore, ABEL KERINDO is ideal for both individual and group learning, as it has been tested in both small and large-scale trials. Its interface, designed using *Articulate Storyline*, resembles PowerPoint, making it easy for new users to navigate (Nurmala, S. et al., 2021).

Fourth, the use of the interactive multimedia ABEL KERINDO in the learning process has proven to enhance students' interest in learning. Interest in learning is measured through four indicators: curiosity, enjoyment, attention, and student participation in learning activities. (Kaharu, 2021; Dhani & Haerudin, 2023). After using ABEL KERINDO, the total score of the four indicators increased from 60% to 80%. The presentation of material in an interactive format can spark curiosity and stimulate physical and emotional reactions from students, making learning more engaging and dynamic. (Tafonao et al., 2020). Furthermore, interactive media design using *Articulate Storyline* enhances learning interest and motivates learners to engage more actively (Aulia & Masniladevi, 2021; Sari & Harjono, 2021). In addition to influencing material comprehension, the interactive multimedia ABEL KERINDO created with *Articulate Storyline* also has a positive impact on students' creativity and learning experiences. (Nurmala, 2021; Wardhani et al., 2024).

Finally, the use of ABEL KERINDO interactive multimedia has proven effective in enhancing learning outcomes. This conclusion is supported by pretest and posttest results, which reveal an increase in the n-gain score to 0.545, categorized as moderate, and a substantial difference of 23.75 points between the pretest and posttest scores. Furthermore, this study highlights that *Articulate Storyline*-based interactive multimedia not only boosts learning outcomes but also enriches the learning experience, making it more engaging and enjoyable. Previous research (Septiana et al., 2023; Ariadiny & Bektiningsih, 2023; Nursalam et al., 2023) supports these findings. Additionally, our results align with Ahmadi et al. (2023), which emphasize that learning outcomes serve as a crucial indicator for assessing students' knowledge and understanding, as evidenced by the notable improvement in students' skills following the use of this technology-based learning tool.

Overall, this study shows that the use of interactive multimedia-based *Articulate Storylines* such as "ABEL KARINDO" is very effective in increasing the interests and learning outcomes of students. Media development tailored to the needs of alpha generation, robust validation, and effectiveness testing shows that this approach can be an innovative solution in learning, especially in SOCIAL SCIENCE. This interactive multimedia is not only relevant but also flexible and accessible, which is an additional advantage in today's digital age.

CONCLUSION

Conclusion

Based on the results and discussions, it can be concluded that the interactive multimedia ABEL KERINDO "Ayo Belajar Kerajaan di Indonesia" based *Articulate Storyline* is effective in improving learning outcomes and interest in social science subjects of the history of the Kingdom of Indonesia, especially for Alpha generation students at SD Kanisius Beringin, Kota Semarang. Product validation showed a high score, with a material expert score of 96.25%, a media expert of 93.75%, a teacher of 100%, and a student of 98%, resulting in an average score of 97%. The pretest-posttest score analysis supported product effectiveness with an increase of 23.75 and an average N-gain of 0.545, which was included in the moderate criteria. In addition, the elevation of interest in learning showed a significant increase, from 66% in the "moderate" category to 80% in the "high" category. Therefore, the use of interactive multimedia ABEL KERINDO "Ayo Belajar Kerajaan di Indonesia" based *Articulate Storyline* proved to be very worthy and effective to increase the results and interest in learning the history of the kingdom SOCIAL SCIENCE at SD Kanisius Beringin, Kota Semarang.

Suggestion

The use of interactive Multimedia "ABEL KERINDO" based on *Articulate Storyline* can be used as an alternative solution to improve the quality of the learning process in meeting the learning characteristics of alpha generation students in grade IV in social science lessons, especially the history of the kingdom of Indonesia. Teachers need to practice skills in developing technology-based learning media such as interactive multimedia created through *Articulate Storyline.* Teachers are also advised to provide guidance to students in the use of the product, both at school and at home, to ensure optimal understanding. Parents are expected to support the use of this media at home with positive assistance. Subsequent research can develop this moderation for other subjects and students with different characteristics. In addition, long-term testing can be carried out to assess the sustainable impact of this multimedia on students' learning interests and learning outcomes.

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