



Development of Learning Media for Basic Pencak Silat Kicking Movement Pattern Variations Based on the Articulate Storyline

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ABSTRACT

Advancements in science and technology during the Industrial Revolution 4.0 and Society 5.0 eras have significantly influenced the formulation and implementation of instructional strategies. The use of such media not only facilitates and enhances the efficiency of the learning process but also makes instruction more engaging. Educators need to possess modern instructional media suited to this era of rapid technological sophistication. This study aims to develop an instructional media application focusing on variations of basic *Pencak Silat* (Indonesian martial art) kicking movements. Specifically, the study seeks to develop and validate an interactive digital learning medium for *Pencak Silat* using the Articulate Storyline platform. A Research and Development (R&D) approach was employed, utilizing the Borg and Gall development model, which comprises the following stages: (1) data collection; (2) planning; (3) development; (4) design validation; (5) design review; (6) product testing; (7) product evaluation; (8) field testing; (9) product evaluation; and (10) mass production. Expert validation regarding *Pencak Silat* content, instructional design, and media quality yielded excellent results, confirming the medium's suitability for educational use. The average expert assessment score was 92.33%. Student response to the *Pencak Silat* instructional medium was highly positive, with scores of 90.1% in small-group trials and 91.44% in large-group trials.

Keywords: *Articulate Storyline, Kick, Pencak Silat*



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INTRODUCTION

Physical Education, Sports, and Health (PJOK) is a subject that supports both the physical development and character formation of students (Akbar & Hariyanto, 2020). This subject focuses not only on physical activity but also enables students to

develop motor skills, maintain fitness, and internalize values such as cooperation and sportsmanship within the school environment. At the elementary school level, Pencak silat is a mandatory component of the PJOK curriculum. This subject plays a dual role: beyond training self-defense techniques and physical agility, Pencak silat serves as a medium to introduce and instill the noble values of the nation's cultural heritage. Specifically for Grade VI, the focus is on mastering various basic kicking patterns, which generally include front kicks, side kicks (or T-kicks), back kicks, crescent kicks, and spinning kicks.

These kicking sequences are inherently challenging to learn, as they demand a complex level of body coordination. When executing a kicking technique, students must simultaneously integrate locomotor movements (such as footwork), non-locomotor movements (to maintain stability and postural balance), and manipulative movements (to control the leg's trajectory toward the target). Such body coordination and balance are essential for ensuring that the movements are executed accurately and with proper direction (Arridho et al., 2021).

However, the process of teaching Pencak silat material in a practical setting often encounters obstacles. Fundamentally, comprehensively explaining technical details and movement concepts is a challenging task for Physical Education (PJOK) teachers; thus, delivering such instruction requires strong explanatory skills supported by the effective use of visual media (Semarayasa, 2021). A preliminary study revealed issues regarding the available learning media, specifically a lack of resources that adequately cater to students' characteristics. While digital technology-based learning media are widely produced, many are created without a proper understanding of the curriculum syllabus or student needs. Currently, learning materials are largely limited to teacher manuals and student textbooks. This is problematic given that elementary school students generally tend to lose interest when confined to standard textbooks. These printed books offer only static, two-dimensional illustrations—visual presentations that fail to fully demonstrate the sequential transitions of kicking movements from start to finish. Consequently, relying on such conventional media is ill-suited to the cognitive characteristics of sixth-grade elementary students.

Ideally, however, teachers are expected to utilize engaging and innovative instructional media to foster student-centered learning, thereby optimally stimulating motivation, interest, and learning autonomy (Wijaya & Kanca, 2019). At this age, students are still in the concrete operational stage of development; consequently, they rely heavily on tangible visual aids and hands-on experience to grasp complex movement instructions. Due to the lack of adequate supporting media, students struggle to form an accurate mental image of how to execute the stages of the kicking movement.

Using animation serves as a suitable alternative to address these comprehension challenges. This medium aligns well with the learning characteristics of elementary school students, who tend to enjoy observing and imitating, and who show a strong interest in engaging visual presentations (Ponza et al., 2018). Animation can present Pencak silat movements more concretely and dynamically, while also allowing for replays tailored to each student's individual learning pace (Hapsary et al., 2025). In the context of Physical Education (PJOK) instruction, media that displays dynamic visual movements has proven more effective than static images or text alone (Latar, 2024). This is further supported by Aulia & Kurniawan (2021), who demonstrated that the use of animated videos can improve learning outcomes; such media effectively visualize the details of movement variations, making them easier for students to understand and replicate (Aulia & Kurniawan, 2021).

Consistent with this, the use of digital teaching materials that integrate visual and interactive elements has proven effective in facilitating a comprehensive, step-by-step understanding of Pencak silat practical skills. These circumstances prompted the proposer to utilize existing resources. By leveraging current technological advancements, the researcher aims to implement a digital learning medium based on the Articulate Storyline application. Developments associated with Industry 4.0 and Society 5.0—particularly in information and communication technology—offer numerous conveniences for the learning process (Handayani et al., 2022; Muhtar, 2017). Articulate Storyline is software that can be used for communication or presentations (Muhajir, 2022; Akbar, 2020). While the application supports Flash-like features for creating animations, it maintains a

simple interface similar to PowerPoint. It offers a variety of templates that can be used to create interactive media (Verawadina, 2020). Consequently, Articulate Storyline is more engaging for students as a learning tool because it incorporates various elements—such as images, text, video, and audio—in desired formats; this application has the potential to heighten student interest and improve information retention during the learning process.

The problem statements are as follows: 1) Limited access to learning media within the school environment; 2) A scarcity of learning media for the art of Pencak Silat, which lacks interactivity and does not allow for in-depth exploration; 3) Insufficient understanding of technology and limited access to digital devices and infrastructure; 4) The need to develop informative and interactive digital content regarding the art of Pencak Silat; and 5) The revitalization of traditional arts through digitalization for the millennial generation.

RESEARCH METHODS

This study aims to develop more engaging and effective learning resources using Articulate Storyline technology. The research employs the Research and Development (R&D) method, which allows researchers to create or refine models and products. The specific output is a multimedia learning product based on Articulate Storyline technology designed for Pencak Silat instruction. According to Borg and Gall (1983:772), educational Research and Development (R&D) is a process used to develop and validate educational products. Sugiyono (2011) outlines a ten-step research and development procedure: (1) Data collection; (2) Planning; (3) Product design; (4) Design validation; (5) Design review; (6) Product testing; (7) Product revision and finalization; (8) Usage testing; (9) Product evaluation; and (10) Mass production.

In this study, the instructional design expert validation phase covered aspects of media quality, technical quality, and visual presentation quality. Validation by media experts addressed aspects of media content quality and visual presentation quality. Meanwhile, a Pencak silat subject matter expert verified the content and accuracy of the learning media. Product testing was conducted with teachers and students. Data collection involved the use of a questionnaire aimed at determining the validity of the product for instructional use and gauging student

reactions to the developed product. The questionnaire was administered to three experts: a subject matter expert, an instructional design expert, and a visual communication design expert. Additionally, documentation was used to consolidate data obtained from the questionnaire results. Data analysis techniques were employed to ensure the resulting learning materials were suitable for use and met established feasibility criteria.

The evaluation of the expert test results was conducted based on data using a Likert scale with scores of 1, 2, 3, 4, and 5. The evaluation results are presented in Table 1.

Table 1. Skala Likert

No	Category	Skor
1	Highly Worth It	5
2	Worthy	4
3	Quite Decent	3
4	Not suitable	2
5	Not feasible	1

Source: Sugiono, 2011

RESULT AND DISCUSSION

This study was conducted in the North Padang District. The Articulate Storyline-based learning media product was developed using the Borg & Gall research and development model, which consists of nine stages:

- 1) Research and information gathering (research and data collection)

Based on the initial observations outlined in the background information section, the first development step involved data collection through the following analyses: a) market analysis, b) user analysis, c) material analysis, and d) infrastructure and facilities analysis.

- 2) The second step involves planning and data collection

At this stage, planning encompasses the communication content to be created based on needs, the product design plan, the markup plan, and the media implementation plan.

3) Product development/design

The learning media product is based on Articulate Storyline technology. The product design phase in this study was carried out systematically using Articulate Storyline 360 as the development platform, with the application downloaded from the official website at <https://articulate.com>.



Figure 1. Articulate Storyline 360 application

Once the download is complete, the installation process is carried out until the application is ready for use. Users can choose a trial version before subscribing to the full version.

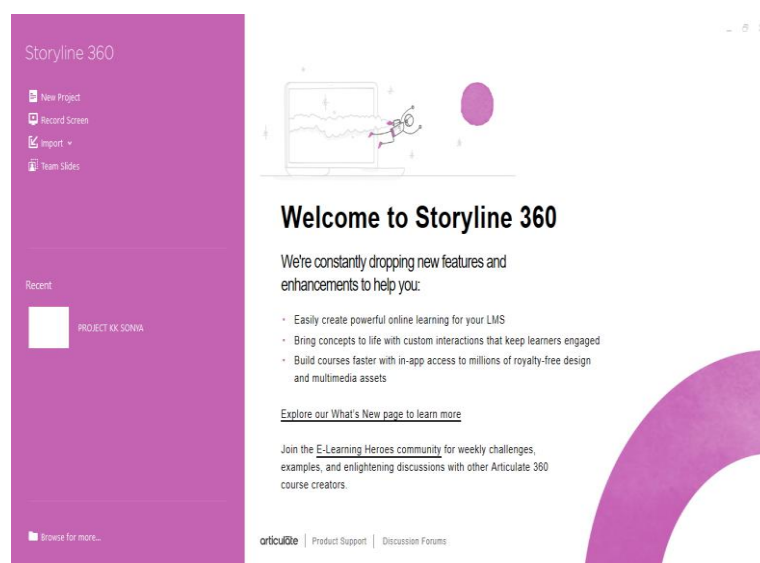


Figure 2. Downloading the Articulate Storyline 360 application.

4) Design Validation.

The developed prototype underwent expert validation involving three specialists: a Pencak Silat subject matter expert, an instructional design expert, and a media technology expert. These experts evaluated the product using a structured questionnaire that assessed aspects such as content accuracy, instructional flow, interface design, and overall functionality. The results indicated an average validity of 92.33%—categorized as "highly valid"—with high scores across the board: 92% from the Pencak Silat subject matter expert, 94% from the instructional design expert, and 91% from the media expert. The experts concluded that the learning media was accurate, pedagogically relevant, and visually engaging. For further details, please refer to Table 2.

Table 2. Results of validation by experts

No	Expert Category	Assessment Aspect	Score Max	Obtained Score	Percentage (%)	Category
1	Material Expert	Content Aspect	20	18	90	Very Good
		Material Accuracy	55	52	94	Very Good
		Average			92	Very Good
2	Instructional Design Expert	Media Content Quality	30	28	93	Very Good
		Media Display	45	43	95	Very Good
		Average			94	Very Good
3	Ahli Media	Program Quality	30	28	93	Very Good
		Media Design	15	13	86	Very Good
		Material Presentation	30	29	96	Very Good
		Average			91	Very Good
Overall Expert Mean Score					92,33	Very Good

- 5) Design Review, Evaluation, and Product Revision (based on expert feedback. Revisions were made based on expert suggestions, encompassing improvements to text readability, layout, color combinations, font clarity, element sizing, and the suitability of the music for the video. Further details can be found in Table 3.

Table 3. Small and Large Scale Trial Results

Expert Type	Focus of Evaluation	Key Suggestions/ Revision Made
Material Expert	Accuracy of Pencak Silat content and curriculum alignment	- Simplify explanations for elementary-level students. - Incorporate moral values (discipline, respect, cooperation).
Instructional Design Expert	Compliance with curriculum and navigation buttons	- Content suitability - Reducing excessive text - Adjusting button positioning and layout
Media Expert	Visual design, animation, and interactivity	- Optimize video playback and add audio cues for interaction - Synchronize narration with animation duration - Improve contrast and font readability

6) Product testing: Small-group trial

Following the validation phase, a small-scale trial was conducted involving 15 respondents (Physical Education teachers and students). Participants used the media independently and completed a questionnaire regarding its practicality. The results yielded an average score of 90.1%, categorizing it as highly practical. Users found the media easy to operate and the content clear, noting that the animations enhanced both motivation and understanding. Teachers stated that the digital format allowed them to demonstrate complex movements more efficiently than conventional explanation methods. Students demonstrated greater enthusiasm, improved retention, and better coordination when practicing Pencak Silat movements after using the application. For further details, please refer to Table 4.

Table 4. Revision from the the Expert

Trial Type	Number of Respondents	Average Score (%)	Category
Uji coba Kelompok Kecil	15	90,1%	Sangat Baik

7) Product Evaluation (Product Revision and Finalization)

Following field trials, final refinements were made—including optimizing video loading speeds, adding audio feedback to navigation buttons, and incorporating a brief interactive quiz at the end of each learning unit. The final product demonstrated high levels of validity, practicality, and effectiveness, making it suitable for implementation in both classroom settings and independent study.

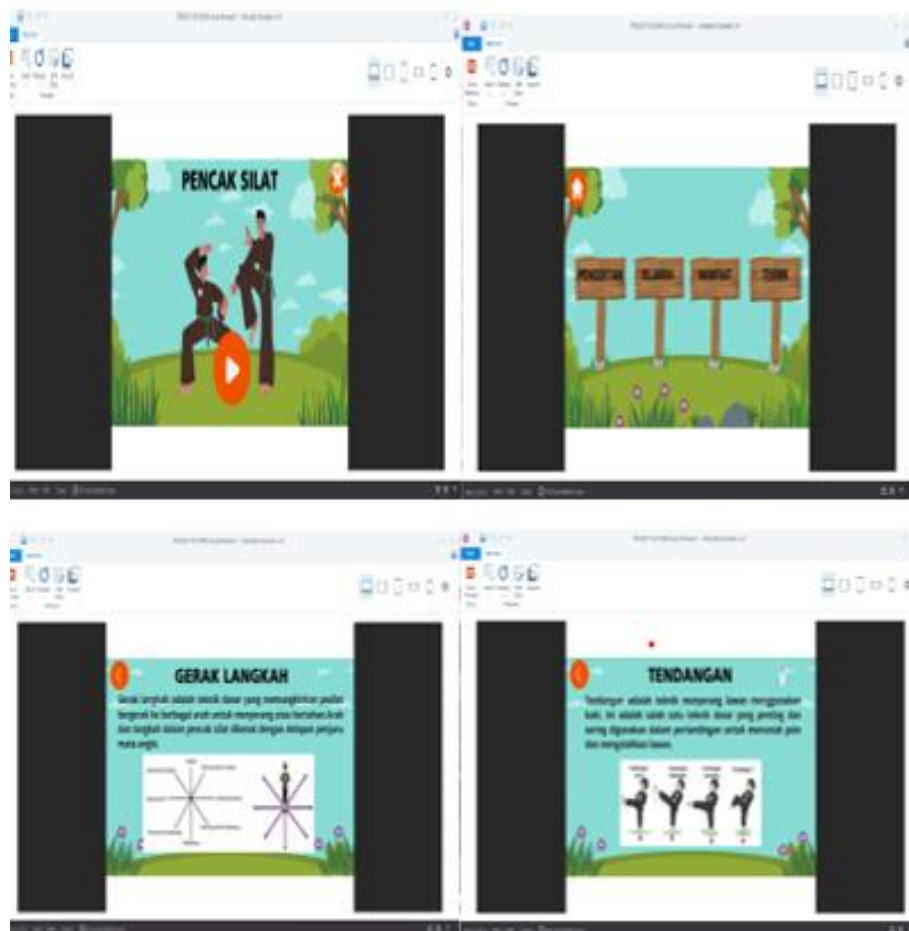


Figure 3. Learning Media Product

8) Pilot Use (Large-scale Trial)

A broader implementation involved 30 students and teachers in the North Padang District. Evaluation results indicated an average practicality rate of 91.44%,

classified as excellent. The development of Articulate Storyline-based Pencak Silat learning media—an animated format—is highly relevant to the learning characteristics of elementary school students, who tend to learn by observing and imitating and show a strong interest in engaging visual presentations (Ponza, 2018). The significance of this research lies in its ability to bridge a tangible pedagogical gap: integrating Indonesia's cultural heritage with modern educational technology to enhance learning quality while simultaneously preserving cultural sustainability. In the current Society 5.0 era, the education sector faces the challenge of fostering digital literacy while preserving local wisdom. Therefore, this research is crucial; it not only improves psychomotor and cognitive skills through multimedia but also contributes to character building and the preservation of cultural identity.

The findings reveal that the Articulate Storyline platform effectively supports interactive learning in elementary-level Pencak Silat education. Validation and testing results—showing expert agreement levels exceeding 92% and user practicality rates above 91%—demonstrate that digital learning media can serve as both engaging and pedagogically valid tools. These results align with broader educational reform agendas that emphasize technology integration to enhance student-centered learning. The study confirms that interactive media incorporating audiovisual elements can significantly boost student engagement and comprehension, particularly for subjects requiring the visualization of movement and rhythm, such as martial arts.

The development of an Articulate Storyline-based learning resource focusing on variations of basic Pencak Silat kicking patterns aligns with previous research by Heliawati (2022), which found that interactive learning using Articulate Storyline enhances student motivation and self-regulation across various disciplines. Similarly, Woll and Wagner (2022) emphasize that integrating multimedia into physical education fosters better retention and psychomotor coordination, particularly when learners can independently manipulate visual and auditory cues. Furthermore, a study by Hasan et al. (2024) on the use of digital media in martial arts instruction demonstrates that interactive simulations significantly improve learners' ability to replicate complex movements by providing step-by-step visualizations. The present study extends these findings by situating this technology

within the context of primary education and incorporating a cultural dimension, thereby yielding a digital pedagogical model that is both inclusive and culturally responsive.

CONCLUSION

The development of Articulate Storyline-based learning media for Pencak Silat has proven to be valid, practical, and pedagogically effective for the elementary school context. Validation results, with an overall average score of 92.33%, indicate that the product meets high standards regarding content accuracy, instructional design, and media quality. Similarly, a practicality score exceeding 91% confirms that this digital medium is user-friendly, engaging, and applicable to classroom learning activities. The integration of interactive multimedia—comprising text, audio, video, and animation—successfully enhanced students' motivation, understanding, and psychomotor coordination in practicing Pencak Silat techniques.

This study demonstrates that Articulate Storyline serves as a powerful yet accessible tool for developing culturally grounded digital learning materials without requiring advanced technical skills. The integration of traditional martial arts pedagogy and modern multimedia design bridges the gap between cultural heritage and 21st-century education. Beyond its educational benefits, this innovation supports the United Nations Sustainable Development Goals (SDGs 4, 9, and 11) by fostering inclusive, technology-driven, and culturally sustainable learning.

Overall, the research concludes that digital transformation in Physical Education, when implemented thoughtfully, can enhance the quality of learning while simultaneously promoting cultural preservation. This Articulate Storyline-based Pencak Silat resource serves as a model for future educational innovations that are contextually relevant, interactive, and aligned with global sustainability goals.

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