



Development of Volleyball Learning Media in Junior High Schools Based on Articulate Storyline

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Abstract

The purpose of this research is to develop volleyball learning media based on articulate storyline for junior high school students. The research and development method uses the ADDIE development model which consists of five main stages: Analysis, Design, Development, Implementation, and Evaluation. Data from the expert validation sheet are analyzed quantitatively descriptively using a Likert scale score (1–4), then converted into a percentage of feasibility. Expert validation results are carried out on three experts, namely material experts, language experts and media experts. The results of the material expert validation obtained an average of 90.63% with a very feasible category, the results of the media expert validation obtained an average of 88.75% with a very feasible category, the results of the language expert validation obtained an average of 84.38% with a very feasible category. The conclusion of this research resulted in the development of a product in the form of volleyball learning media based on articulate storyline in junior high schools that is suitable for use.

Keywords: instructional media, articulate storyline, volleyball game



Introduction

Physical education at the junior high school level serves more than just exercise; it also helps students build character, develop motor skills, and strengthen social skills. One of the compulsory subjects taught in physical education, sports, and health (PJOK) is volleyball. Volleyball learning activities on the field are still limited by a lack of innovation in learning, such as a lack of interactive media, and learning models and methods that are still not varied when applied (Arif & Kemiri, 2025; Kristianingsih, 2021; Vai et al., 2021) which is able to attract students' attention while explaining the basic techniques of the game in an easy-to-understand way, in addition to that, learning volleyball practice is also hampered by external factors such as weather, limited time, and inadequate facilities, so that students have not received optimal learning experiences, especially in understanding the concept of basic techniques and tactics in volleyball learning, on the other hand, technological advances provide opportunities to create more flexible and interesting learning media.

In today's digital era, incorporating information technology into learning has become a necessity. Teachers are required to use digital tools to support the teaching and learning process (Buus & Georgsen, 2018). Interactive media has been proven to be able to encourage learning motivation and clarify student understanding of the material presented (Anggraeni et al., 2025; Dian Nur Septiyawati Putri, Fitriah Islamiah, Tyara Andini, 2022; Muhammad Rizieq Asyamsi et al., 2025) One application that can be used is Articulate Storyline: an authoring program that allows teachers to design interactive multimedia teaching materials without having to be programmers (Kuraesin & Indayati, 2023; Nadzif et al., 2022; Saskia et al., 2022) in addition, student responses to the use of interactive media articulate storyline is very good. This is because the interactive media articulate storyline has the advantage of various features that present contextual problems related to everyday life (Ratnaningsih et al., 2024). Unfortunately, examples of the use of this application in Physical Education lessons, especially for volleyball techniques, are still very limited. The use of articulate storyline as a learning medium is due to its ease of use and teacher-friendly interface, where articulate storyline has an interface similar to PowerPoint, making it easy for teachers to operate without requiring high-level coding or graphic design skills. In addition, complete interactive features in one platform where this platform supports the integration of text, images, audio, video, animation, interactive simulations, and

quizzes (multiple choice, drag-and-drop, and hotspots) in one learning file. This makes it very suitable for skill-based and interactive learning, in addition the output is flexible and compatible with LMS Storyline, and this allows the media to be used online or offline, even integrated into the school's e-learning platform, and articulate storyline has the ability to simulate motion and interaction compared to genially or canva which are more static or semi-interactive, articulate storyline can display a sequence of smash movements, observe motion animations, then work on evaluation questions directly in one screen display.

This research has an urgency, namely to answer the challenges in the field related to the lack of effectiveness of volleyball game learning materials and limited practicum facilities, providing new solutions by utilizing technology to improve students' understanding and skills of volleyball game materials, and filling the research gap regarding the lack of interactive media for practical materials in Physical Education and Sports (PJOK). Accelerate the adoption of technology in PJOK learning that is in accordance with the digital age and the applicable curriculum. The question of this research is how is the process of developing volleyball game learning media based on Articulate Storyline for Junior High School students? and this research aims to develop volleyball game learning media based on Articulate Storyline for Junior High School students.

Methods

This research is a research and development (R&D) study. Research and development methods are used to produce specific products and test their effectiveness (Waruwu, 2023). Qualitative data in the form of suggestions from validators are analyzed for product revisions (Sugiyono, 2023), so that conclusions regarding the results of the analysis of the percentage of the feasibility level are easier to obtain, criteria are determined.

Research Design

Research and development aims to produce new products through a development process using the ADDIE development model, which consists of five main stages: Analysis, Design, Development, Implementation, and Evaluation (Mesra, 2023).

Participants

This research was conducted at two junior high schools in Ogan Ilir Regency: Junior high school No 1 Indralaya Selatan and Junior high school No 1 Indralaya. This research was conducted from September 29 to October 20, 2025. The subjects were students from the two junior high schools in Ogan Ilir Regency.

Table 1
Needs Analysis Results

Criteria	Frequency	Percentage (%)
Strongly Needed	251	88.38
Needed	21	7.39
Moderately Needed	5	1.76
No Need	3	1.06
Strongly No Need	4	1.41
Total	284	100%

Procedure

The research procedure is as follows:

1. Analysis

This analysis stage aims to identify needs and problems in volleyball learning in junior high schools. Activities include observing the physical education (PJOK) learning process in the classroom, administering questionnaires to teachers and students, and analyzing the curriculum and teaching materials.

2. Design

The design stage involves designing the content structure and presentation of the media based on the results of the analysis stage. The design stages are as follows: (1) Developing the content flow and storyboard, (2) Designing the layout, interactivity, and navigation of the media, and (3) Developing assessment instruments (questionnaires, validation sheets, test questions).

3. Development

This development stage is the realization of the design into digital learning media based on the Articulate Storyline.

The stages in this development are as follows: creating a draft for the articulate-based media development, conducting validation by material experts, media experts, and language experts, and revising the product based on the validation results.

4. Implementation

This stage is carried out through a limited-scale trial of the media on students and Physical Education (PJOK) teachers, where teachers and students use the media in PJOK learning. Data collection is carried out through questionnaire responses and observations of student engagement.

5. Evaluation

Evaluation is conducted to determine the effectiveness of the media and its improvements. Evaluation is carried out through formative evaluation: at each ADDIE stage for continuous revision; and summative evaluation: after implementation, assessing the achievement of learning objectives through pre- and post-tests.

Data Analysis

In the analysis stage, a quantitative descriptive analysis was conducted by summarizing patterns of needs, student difficulties, and teacher roles. The results were used to develop media feature requirements. Data from the expert validation sheet was analyzed quantitatively descriptively using a Likert scale score (1-4), then converted to a feasibility percentage.

Results

The results of the needs analysis for developing volleyball learning media based on articulate storylines in junior high schools are as follows:

Based on [Table 1](#), the results obtained with a sample size of 284 students. In accordance with the criteria of very need as many as 251 (88.38%) students, with the category of need as many as 21 (7.39%) students, the category of moderate 5 (1.76%), the category of less need as many as 3 (1.06%) and the category of not really need as many as 4 (1.41%) students. Based on the results of the needs analysis, the results showed that there is a great need for the development of volleyball learning media based on articulate storyline.

Discussion

This section discusses the findings of the data analysis results that are linked to relevant theories and previous research results. The discussion contains 35% of the entire article.

Direct observation and study of small and large populations, along with social phenomena in the field of education, illustrates the transformation process of scientific knowledge components ([Sugiyono, 2023](#)). This research was conducted to understand several things that occur in the field. The subjects were students at State Junior High School 1 Indralaya and South Indralaya Junior High School 1. Data collection was conducted through a questionnaire distributed via Google Forms, completed online via a link. The quantitative data type was used with a questionnaire instrument ([Dogho et al., 2021](#)).

A questionnaire is a data collection technique that involves asking questions to be answered by respondents (Prasetyo, 2014). The data collection technique involved distributing questions to respondents about the need to develop volleyball learning media based on articulate storylines. The questionnaire was used to gather respondents' opinions regarding the need for this learning media development. The research was conducted from October 8 to October 15, 2025, with 284 students participating. Field data collection was conducted by sharing a Google form link in the WhatsApp group for grades 10, 11, and 12.

The research results from the needs analysis stage showed a high percentage of 95.77% in the "very need" and "need" categories. This percentage indicates a gap between the learning media used and the learning media expected by students. These results indicate that the learning media used during the learning process have not fully facilitated student needs, particularly the volleyball game concept that utilizes motion visualization, demonstrations of basic techniques, and more engaging learning interactions (Hardika et al., 2024; Zhe & Suparjoh, 2023). The characteristics of physical education learning align with this, requiring visual and interactive media to help students understand concepts concretely. Articulate Storyline, an interactive media development platform, is considered capable of addressing these needs because it provides animation features, motion technique simulations, interactive quizzes, and learning navigation that is easy for students to understand (Adinda Inka Nurkhalimah, 2025; Daryanes et al., 2023). The use of articulate storylines is believed to increase student motivation, conceptual understanding, and learning outcomes in volleyball material. Furthermore, the very high demand results indicate that students require media that is more modern, innovative, and adaptive to technological developments. This is in line with 21st-century educational trends that emphasize the use of technology in the learning process to create a more active and meaningful learning experience (Kalyani, 2024; Pramesworo et al., 2023). With the dominance of students in the category of high need, it can be concluded that the development of volleyball learning media based on Articulate Storyline is highly relevant and urgent. This media is expected to be a solution in improving the quality of learning and meeting students' needs for more engaging and effective learning resources. The next stage is the planning stage, which consists of three stages: material structure and storyboard design, media layout and navigation design, and interactive feature design. The next stage is the development stage, which is carried out up to the expert validation stage. The product has been

drafted and proceeded to expert validation. This validation was conducted by three experts: a language expert, a material expert, and a media expert. The results of each expert validation were obtained: the material validation averaged 90.63%, categorized as very suitable. This indicates that the volleyball learning media content aligns with the applicable curriculum, is conceptually correct, and is presented clearly and systematically. This assessment indicates that this learning media can help students understand basic techniques, game rules, and volleyball concepts through a more visual and interactive presentation.

The media expert validation averaged 88.75%, categorized as very suitable. Articulate Storyline presents media in an engaging, general manner, and is compatible with various devices, thus strongly supporting modern technology-based learning processes. These results indicate that the articulate storyline learning media meets the standards for effective and user-friendly digital learning media. The validation results from language experts averaged 84.38%, with the category of very suitable based on the validation results from three experts. Clarity of language is crucial because good material relies heavily on readability and ease of understanding by students in every instruction and explanation contained in the media. Several previous studies (Wilyanti et al., 2023) have shown that developing articulate storyline learning media can improve science skills. Erfayliana et al. (2022) and Irsyada et al. (2025) have also developed articulate storyline media for physical education learning.

Therefore, this Articulate Storyline-based learning media can be used as an alternative interactive digital media in volleyball learning in junior high schools. This media not only supports theoretical understanding of concepts but also helps students learn independently through the interactive features available in this articulate storyline-based media.

Conclusions

Based on the research results, it was found that volleyball learning media based on articulate storyline needs to be developed based on needs analysis with a percentage of 95.77% and continued with product development products and producing products in the form of volleyball learning media based on articulate storyline in junior high schools that are suitable for use based on validation by 3 experts. This Articulate Storyline-based learning media can be used as an alternative interactive digital media in volleyball learning in junior high schools. This media not only supports theoretical understanding of concepts, but also helps students to learn independently

through interactive features available in this articulate storyline-based media.

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