



## Application of Audiovisual Methods To Improve Learning Outcomes In Sideways Shot Put For Students In Class VIII A of SMPN 9 Kota Jambi

Farhan Ramadhan<sup>1A-E\*</sup>, Ugi Nugraha<sup>2B-D</sup>, Ceppy Pradana Putra<sup>3B-D</sup>

<sup>1,2,3</sup> Universitas Jambi, Jambi, Indonesia

[farhanramadhan0103@gmail.com](mailto:farhanramadhan0103@gmail.com)<sup>\*</sup>, [ugi.nugraha@unja.ac.id](mailto:ugi.nugraha@unja.ac.id)<sup>2</sup>, [ceppy\\_putra@unja.ac.id](mailto:ceppy_putra@unja.ac.id)<sup>3</sup>

### ABSTRACT

This study was conducted in response to the low learning outcomes of students in sideways shot put material in Physical Education, Sports, and Health (PJOK) class VIII A at SMP Negeri 9 Kota Jambi. The problem was identified in students' limited attention, motivation, and understanding of the fundamental biomechanical phases of the sideways shot put technique. Conceptually, this research is grounded in physical education pedagogy, multimedia learning theory, and motor learning principles, which emphasize the integration of visual and auditory stimuli to enhance skill acquisition and cognitive processing. This study employed a Classroom Action Research (CAR) design implemented in two cycles, consisting of planning, action, observation, and reflection stages. The participants were 33 students of class VIII A. Data were collected through observation sheets, sideways shot put performance tests, and documentation. Quantitative data were analyzed using percentage-based mastery learning criteria, while qualitative data supported the interpretation of classroom engagement and learning processes. The findings demonstrated a substantial improvement in student learning outcomes after the implementation of the audiovisual method. In Cycle I, learning mastery reached 51% with an average score of 62. In Cycle II, mastery increased to 88% with an average score of 77. These results indicate that audiovisual-based instruction effectively enhances students' conceptual understanding, technical execution, and learning motivation in sideways shot put. Therefore, audiovisual methods can be considered an innovative and effective strategy in improving athletic learning outcomes at the junior secondary level.

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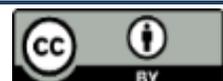
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## INTRODUCTION

Physical Education, Sports, and Health (PJOK) is an essential component of the national education system, developing physical fitness, motor skills, and cognitive capacity, as well as developing students' holistic character. Recent literature shows that physical education contributes significantly to the development of adolescents' physical and mental health, including improving cardiorespiratory fitness, motor control,



emotional regulation, and fostering a lifelong active lifestyle (Biddle et al., 2019; Poitras et al., 2016; World Health Organization, 2020). Pedagogically, PJOK is not simply physical activity, but a structured educational process designed to build movement competency and sustainable physical literacy (Edwards et al., 2017; Cairney et al., 2019).

However, various studies indicate that the effectiveness of physical education (PJOK) instruction in junior high schools still faces significant challenges, particularly in student engagement, intrinsic motivation, and understanding of correct movement techniques (Chen et al., 2018; Hastie & Casey, 2014; Siedentop et al., 2020). Learning that relies on conventional lecture and demonstration methods often fails to meet the learning needs of the digital generation, accustomed to visual and interactive stimulation (Casey et al., 2021; Papastergiou et al., 2021).

Empirical conditions at SMPN 9 Kota Jambi, particularly in grade VIII A athletics (shot put), indicate low student attention to teacher explanations, lack of active participation, and limited understanding of correct basic techniques. Initial observations indicate that students tend to be passive when teachers deliver material verbally without adequate visual support. This situation impacts the quality of technique mastery, the efficiency of learning time, and the achievement of psychomotor learning outcomes.

In fact, shot put, as part of athletics, requires an understanding of complex movement biomechanics, including body segment coordination, force transfer, release angle, and body stability (Linthorne, 2015; Bartlett, 2018). Without an appropriate learning approach, students struggle to grasp the concepts of push force, starting position, transition phase, and release phase in an integrated manner. Therefore, there is an urgent need to introduce learning innovations that can simultaneously improve students' attention span, conceptual understanding, and technical skills.

Developments in educational technology over the past decade have encouraged the integration of digital media in Physical Education (PJOK) learning. Audio-visual media, particularly instructional videos, have been shown to enhance understanding of movement concepts through dynamic visual representations that cannot be optimally conveyed through verbal explanations alone (Kay, 2018; Giannakos et al., 2021). Dual Coding Theory (Paivio) and Cognitive Theory of Multimedia Learning (Mayer, 2021) explain that the combination of visual and auditory information can enhance knowledge retention and transfer.

In the context of physical education, research shows that the use of video modeling and slow-motion replays can improve students' technique accuracy and kinesthetic perception (Raiola & Di Tore, 2017; Palao et al., 2020). A study by Casey et al. (2021) confirmed that the integration of digital technology in physical education (PJOK) increases student motivation and active participation. Furthermore, a meta-analysis by Cidral et al. (2018) indicated that interactive video media significantly improves learning outcomes compared to conventional methods.

In athletics, visualizing movement techniques through animation or biomechanical videos allows students to understand the sequence of movement phases more systematically (Knudson, 2020). Recent research also shows that multimedia-based

learning is effective in improving coordination and movement efficiency in basic athletic technique courses in high school (Moreno-Guerrero et al., 2020; Yildirim, 2022).

Furthermore, the audio-visual approach also aligns with the characteristics of Generation Z, who prefer visual-based, fast-paced, and interactive learning (Seemiller & Grace, 2017; Prensky, 2018). The integration of instructional videos in Physical Education (PJOK) has been shown to increase students' attention, self-efficacy, and confidence in practicing motor skills (Bandura, 2018; Li et al., 2021).

Therefore, conceptually and empirically, audio-visual media has a strong theoretical foundation and empirical evidence supporting its effectiveness in improving the quality of motor skills learning.

Although various studies have demonstrated the effectiveness of audio-visual media in sports learning, most studies have focused on sports such as soccer, volleyball, or badminton (Palao et al., 2020; Papastergiou et al., 2021). Research specifically examining the effectiveness of audio-visual media in athletics, particularly shot put at the junior high school level, is still relatively limited.

Furthermore, many previous studies have focused on student motivation or perception without integrating quantitative analysis of technical skill improvement through standardized psychomotor measurements (Cidral et al., 2018; Casey et al., 2021). Another gap lies in the implementation context in regional public schools, which have limited facilities and diverse student characteristics.

Small studies have empirically tested how audio-visual media can bridge the gap between conceptual understanding of motion biomechanics and direct practice of shot put techniques on the field. In fact, sports biomechanics literature emphasizes the importance of visually understanding the motion phases to improve force transfer and optimal release angle (Linthorne, 2015; Bartlett, 2018).

Therefore, significant research gaps exist: (1) the lack of experimental research on shot put at the junior high school level, (2) the minimal integration of biomechanical engineering analysis with a multimedia approach, and (3) limited empirical evidence in the context of Indonesian public schools.

Based on these issues and gaps, this study aims to analyze the effectiveness of using audio-visual-based learning media in improving shot put technique learning outcomes among eighth-grade students at SMPN 9 Jambi City. This study specifically examines the improvement of technical skills through standardized measurements covering aspects of starting position, transition phase, release, and overall movement coordination.

The novelty of this research lies in: (1) The integration of a multimedia approach with biomechanical engineering analysis of shot put at the junior high school level; (2) Empirical testing of the effectiveness of audio-visual media in the context of regional public schools; and (3) Contributing to the development of innovative visual-based learning models that align with the characteristics of the digital generation.

Theoretically, this research enriches the literature on the implementation of multimedia learning in physical education. Practically, the results of this study are

expected to form the basis for developing more interactive, effective, and adaptive athletic learning strategies to meet the needs of 21st-century students.

With this approach, Physical Education (PJOK) becomes not just a routine physical activity, but a technology-based pedagogical transformation capable of simultaneously improving students' motor skills, conceptual understanding, and learning motivation.

## METHODS

This study employed a reflective, collaborative, and spiral Classroom Action Research (CAR) design, aimed at improving direct classroom learning practices (Kemmis et al., 2018; Casey et al., 2021). CAR was chosen because it is effective in improving learning quality through an iterative cycle involving systematic planning, action, observation, and reflection (McNiff, 2017; Norton, 2019). This model is relevant in the context of physical education, which demands continuous improvement based on real-world practice (Hastie & Casey, 2014; Dyson et al., 2016).

The study was conducted in two cycles, each consisting of four stages: (1) planning, including the development of lesson plans based on audiovisual methods, the development of video media for sideways shot put techniques, and observation instruments; (2) implementation of the action, including the implementation of learning using video modeling and structured demonstrations; (3) observation, conducted collaboratively to record student engagement and technique quality; and (4) reflection, to evaluate the effectiveness of actions and design improvements for the next cycle (Kemmis et al., 2018; Elliott, 2020).

The audiovisual approach in this study is based on the Cognitive Theory of Multimedia Learning, which states that the integration of visual and auditory information improves motor comprehension and memory retention (Mayer, 2021; Giannakos et al., 2021). In the context of physical education, video modeling has been shown to improve technical accuracy, kinesthetic perception, and student learning motivation (Raiola & Di Tore, 2017; Palao et al., 2020; Li et al., 2021). The use of slow-motion replays and visualization of movement phases also supports the understanding of basic biomechanics in athletics (Knudson, 2020; Bartlett, 2018).

The study population was all 251 eighth-grade students at SMPN 9 Kota Jambi. Based on initial observations and grade analysis, class VIII A demonstrated the lowest learning outcomes in the shot put technique. Therefore, 33 students were selected as the research subjects using a purposive sampling technique (Etikan & Bala, 2017). The selection of classes based on improvement needs aligns with the CAR principle, which focuses on contextual problem-solving (Norton, 2019).

The data collected consisted of quantitative and qualitative data. Quantitative data were obtained through an assessment of shot put learning outcomes, covering the initial stance, transition phase, release, and overall motor coordination, using a validated motor skills assessment rubric (Siedentop et al., 2020; Metzler, 2017). Qualitative data were obtained through student activity observation sheets, field notes, and learning

documentation. The use of multiple instruments increased the validity and reliability of the findings (Creswell & Creswell, 2018).

The success criterion for the action was determined if  $\geq 75\%$  of students achieved scores above the Minimum Completeness Criteria (KKM), according to the physical education learning evaluation standards (UNESCO, 2015; Siedentop et al., 2020).

Qualitative data were analyzed through reduction, presentation, and reflective drawing of conclusions to identify improvements in student engagement and response to audiovisual media (Miles et al., 2018). The integration of quantitative and qualitative analysis provides a comprehensive picture of the effectiveness of the intervention (Creswell & Creswell, 2018).

With this design, the study not only measured improvements in lateral shot put skill scores but also evaluated changes in the quality of the learning process through innovative audiovisual methods based on empirical evidence and cutting-edge multimedia learning theory.

## RESULTS AND DISCUSSION

### Result

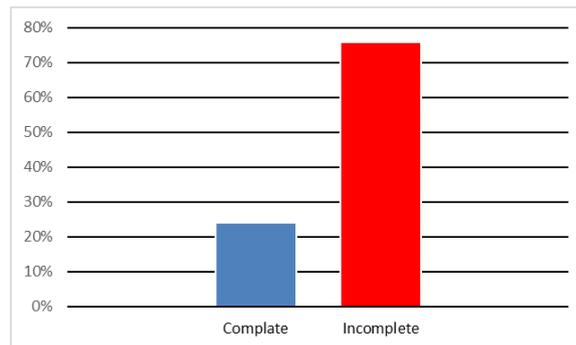
#### Pre-Cycle Actions

Before the action was implemented, the researcher observed the Physical Education and Health subject in the eighth grade. The results of this pre-action observation then became the basis for conducting the research. The following are the results of the observation and data obtained during the pre-action activity:

1. At the time of learning the sideways shot put technique, many students still made mistakes and were not yet proficient in performing the sideways shot put technique. Therefore, in order to achieve perfect results in learning the sideways shot-put technique, the researcher sought to improve the students' abilities by providing an audio-visual learning method.
2. Find out whether all students understand the lesson that has been explained. This is evident from the number of students who are still unable to perform the sideways shot put movement perfectly and correctly.

In the above situation, the problems encountered in athletics (shot put) were caused by not using the right learning methods or models. One of the right learning methods or models for the problems that occurred was the audio-visual method. The audio-visual method in school learning is an approach that utilizes tools and media that can be heard and seen to deliver lesson material in a more interesting, interactive, and easy-to-understand way for students.

In this study, class VIII A was selected as the class to be studied because many students in class VIII A still made mistakes in performing the sideways shot put movement, so their learning outcomes had not yet reached the average level of mastery. The following are the average scores before the application of audio-visual methods to student learning outcomes.

**Figure 2.**

Pre-Cycle Learning Assessment Chart

Based on the learning outcome graph above, it can be seen that the results are still low, as only 8 students or 24% have completed the course, while 25 students or 76% have not completed the course. The average student score is 52, while the minimum passing score set by the school is 75. These low learning outcomes need to be improved by implementing a learning method that can improve student learning outcomes. The audio-visual method is one solution that teachers can use to improve student learning outcomes.

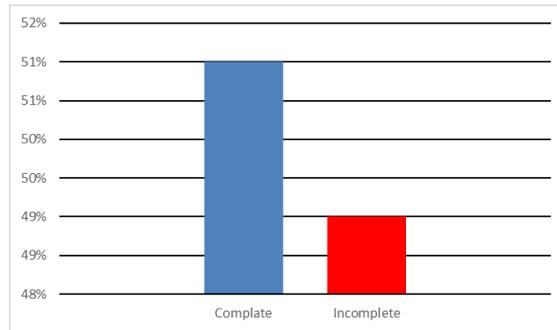
Based on the above problems, the researcher made suggestions to the principal and physical education teachers to help solve the problems in the learning activities. The researcher used the classroom action research (CAR) method with the help of audio-visual methods during the learning process. By using this learning method, the researcher hoped to improve the learning outcomes of the sideways shot put in physical education lessons.

### Results of Cycle I Implementation

At the beginning of the implementation, classroom action research was conducted by implementing cycle I. Cycle I consisted of 3 x 45 minutes of lessons. The material in cycle I was learning to throw a shot put sideways. In cycle I, the audio-visual learning method was applied to the material on learning to throw a shot put sideways. At the beginning of each lesson, the teacher motivated and prepared the students by asking them questions related to the material to be learned.

In implementing this audio-visual method, the teacher first showed an audio-visual presentation related to learning the sideways shot put. After showing the audio-visual presentation, the teacher gave a brief explanation related to the presentation so that the students could understand it. After the students watched and listened to the audio-visual presentation, they were given the opportunity to ask questions about anything they did not understand.

The results of observing student activities provide an overview of student behavior during learning activities that have been observed by the observer. The skill test or sideways shot put practice was conducted after the audio-visual learning process. The results of observing student activities provide an overview of student behavior during the learning activities observed by the observer. The skills test or sideways shot put practice was conducted after the audio-visual learning process, and the students' learning outcomes are presented in the following graph:



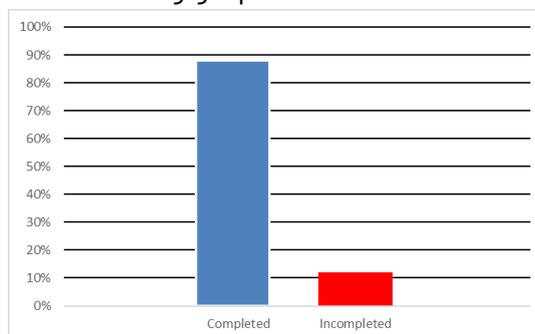
**Figure 3.**  
 Cycle I Assessment Chart

From the assessment graph above, it can be seen that the implementation of the sideways shot put test still does not meet the minimum average score of 75. From the observations in cycle I, which was attended by 33 students, the average score obtained was 62, and only 17 students scored above 75. Therefore, the researcher proceeded to cycle II to improve the weaknesses found in cycle I and to find the best solution to obtain the best results.

**Results of Cycle II Implementation**

In the initial implementation, classroom action research was conducted using cycle II. This meeting consisted of 3 x 45-minute lessons. In cycle II, audio-visual methods were also applied in the learning process. The teacher then motivated and encouraged the students and gave them an overview of the learning material that would be explained. The teacher then began to explain the learning material that would be shown in the audio-visual presentation. After the students watched and listened to the audio-visual presentation, they were given the opportunity to ask questions about anything they did not understand.

The results of observing student activities provide an overview of student behavior during the learning activities observed by the observer. The sideways shot put skill test was conducted after the audio-visual learning process, and the student assessment results are presented in the following graph:



**Figure 4.**  
 Cycle II Assessment Chart

From the assessment and graph above, it can be seen that the implementation of the sideways shot put learning activity in cycle II has been completed, with learning outcomes exceeding the minimum passing grade of 75. From the observations in cycle

II, which was attended by 33 students, only 29 or 88% obtained a score of > 75. Based on the data obtained, there has been a significant improvement in the sideways shot put learning material.

## Discussion

The results of this study indicate that the application of audiovisual-based learning methods significantly improved learning outcomes in the lateral shot put technique for grade VIII A students at SMPN 9 Jambi City. Theoretically, audiovisual media is a learning communication tool that simultaneously integrates visual and auditory stimulation, thereby clarifying information, strengthening conceptual understanding, and improving student memory retention (Mayer, 2021; Giannakos et al., 2021). In the context of physical education, the use of instructional videos and dynamic visual demonstrations provides a more concrete representation of movement than verbal explanations alone (Casey et al., 2021; Palao et al., 2020).

The findings of this study indicate that in the first cycle, the learning completion rate only reached 51% with an average score of 62, still below the Minimum Competency (KKM) of 75. These results indicate that in the initial stages of implementation, students were still adapting to the new approach. This aligns with motor learning theory, which states that the initial cognitive phase of skill acquisition requires time to understand basic movement patterns and coordination (Schmidt & Lee, 2019; Magill & Anderson, 2017). In cycle I, despite the use of audiovisual media, the internalization of the sideways shot put technique was still suboptimal because students were still developing an initial understanding of the sequence of movement phases.

However, in cycle II, significant improvement occurred, with 88% of students achieving mastery, and the average score increasing to 77. The 37% increase in classical mastery and the 15-point increase in the average score demonstrate the effectiveness of audiovisual intervention in improving learning quality. Empirically, these findings align with research by Raiola and Di Tore (2017), which found that video modeling can improve the accuracy of movement techniques in athletics learning. A study by Li et al. (2021) also showed that integrating instructional videos improved self-efficacy and motor coordination in middle school students.

From the perspective of the Cognitive Theory of Multimedia Learning, this improvement can be explained through the principle of dual coding, where visual information (shot put movements) and auditory information (narrative explanations) are processed through two distinct, mutually reinforcing cognitive channels (Mayer, 2021). This reduces cognitive load and improves the integration of information into long-term memory (Sweller et al., 2019). In learning complex motor skills such as the lateral shot put, visualizing the approach phase, body rotation, and release angle significantly helps students understand the biomechanics of movement more systematically (Knudson, 2020; Bartlett, 2018).

In addition to cognitive aspects, improved learning outcomes are also influenced by increased student motivation and engagement. The literature shows that the current generation of adolescents prefers visual and digital-based learning (Seemiller & Grace,

2017; Prensky, 2018). The integration of audiovisual media creates a more engaging, interactive, and relevant learning experience, reflecting the characteristics of the digital generation (Moreno-Guerrero et al., 2020). A study by Papastergiou et al. (2021) demonstrated that the use of technology in physical education significantly increased student participation and enthusiasm.

In the context of learning the sideways shot put technique, the use of video allows students to observe technical details such as foot position, weight transfer, push angle, and arm-torso coordination repeatedly (slow-motion replay). This supports Bandura's (2018) observational learning principle, which states that individuals can learn motor skills through visual modeling. Recent research has shown that visual observation-based learning effectively improves movement accuracy and performance consistency in athletics (Yildirim, 2022; Cidral et al., 2018).

The improvement in learning outcomes from cycle I to cycle II also demonstrates the importance of the reflection process in the Classroom Action Research model. Reflection allows teachers to refine their delivery strategies, optimize video playback duration, and provide more specific feedback on weak technical aspects (Kemmis et al., 2018; Elliott, 2020). This reflective approach aligns with the principles of modern physical education pedagogy, which emphasizes continuous, practice-based evaluation (Hastie & Casey, 2014; Dyson et al., 2016).

Biomechanically, the sideways shot put technique requires complex segmental coordination and force transfer from the lower to upper extremities (Linthorne, 2015). Without clear visual representation, students are prone to errors in the transition and release phases. Through audiovisual media, students can see a detailed demonstration of the correct technique, thereby minimizing technical errors. This is reflected in the improvement in the quality of students' movements in cycle II, particularly in aspects of balance and release angle.

The findings of this study also support the meta-analysis by Giannakos et al. (2021), which stated that video instruction is effective in improving psychomotor learning outcomes compared to conventional methods. Furthermore, recent studies in the Asian physical education context have shown that multimedia learning significantly improves basic motor skills in secondary school students (Blau et al., 2025; Silaban et al., 2025).

However, four students (12%) did not achieve mastery in cycle II. This indicates that the effectiveness of audiovisual media remains influenced by individual factors such as initial physical ability, motor coordination, and intrinsic motivation (Cairney et al., 2019; Biddle et al., 2019). Therefore, the implementation of audiovisual methods needs to be combined with a differentiated approach and individual guidance for optimal results.

Overall, the increase in completion rate from 51% to 88% demonstrates that audiovisual methods are not simply visual aids, but rather a pedagogical strategy based on modern learning theory that effectively improves students' understanding of technique, learning motivation, and psychomotor outcomes. These findings contribute to strengthening the technology-based physical education paradigm, particularly in athletics, which has traditionally tended to be taught conventionally.

Therefore, it can be affirmed that the systematic and reflective application of audiovisual methods can significantly improve the quality of sideways shot put learning, across cognitive, affective, and psychomotor aspects. Technology integration in Physical Education is no longer an option but a necessity to address the challenges of 21st-century learning that demand innovation, effectiveness, and contextual relevance.

## CONCLUSION

Based on the research results and discussion, it can be concluded that the application of audiovisual-based learning methods significantly improved learning outcomes in the lateral shot put technique for class VIII A students at SMP Negeri 9 Jambi City. Empirically, there was an increase in learning completion from 51% in cycle I to 88% in cycle II, a 37% increase. The average student score also increased from 62 to 77, indicating a 15-point improvement between cycles. This improvement confirms that the integration of visual and auditory stimulation can strengthen understanding of technical concepts, clarify the sequence of movement phases, and improve the accuracy of students' psychomotor performance.

Conceptually, the success of the audiovisual method aligns with multimedia learning theory and observational learning, which emphasize the importance of visual representation in mastering motor skills. Furthermore, the effectiveness of the action is inseparable from the reflection process in each Classroom Action Research cycle, which allows for systematic and continuous improvement of learning strategies. Thus, the audiovisual method can be recommended as an innovative alternative in physical education learning, particularly in athletics, to comprehensively improve the quality of the process and student learning outcomes.

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