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Efforts to Improve Forward Roll Skills Through the Use of Video Feedback

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ABSTRACT

Forward roll is one of the fundamental skills in floor gymnastics that students must master in Physical Education, Sports, and Health (PJOK) learning. However, many students experience difficulties in performing the movement correctly due to limited motor coordination, lack of confidence, and insufficient individualized feedback during the learning process. This study aimed to improve the forward roll skills of Grade 10 students in Class X-1 at State Senior High School 2 Martapura through the implementation of video feedback media in floor gymnastics learning. The study employed a Classroom Action Research (CAR) design based on the Kemmis and McTaggart model, consisting of two cycles: planning, action, observation, and reflection. The participants were 35 students of Class X-1 in the even semester of the 2025/2026 academic year. Data were collected through performance tests, observations, and documentation, and analyzed using descriptive and comparative techniques. The findings revealed a substantial improvement in students' forward roll performance after the implementation of video feedback. Classical learning mastery increased from 37.14% in the pre-cycle (13 out of 35 students achieving mastery) to 60.00% in Cycle I, and further improved to 88.57% in Cycle II. Similarly, the average class score increased from 64.18 (Poor category) in the pre-cycle to 73.19 (Fair category) in Cycle I, and reached 79.56 (Good category) in Cycle II. The integration of peer-feedback activities in small groups during Cycle II further enhanced students' learning outcomes and engagement. In conclusion, video feedback is an effective and innovative instructional strategy for improving forward roll skills and can be recommended for PJOK learning at the secondary school level.

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A. Conception and design of the study;
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INTRODUCTION

Physical Education, Sports, and Health (PJOK) plays an essential role in achieving holistic educational objectives by developing students' physical, cognitive, affective, and psychomotor domains simultaneously. In the context of the Indonesian Merdeka

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Curriculum, PJOK is designed to facilitate students' mastery of movement competencies through meaningful learning experiences that encourage active participation, critical thinking, and self-reflection. At the senior high school level, students are expected to analyze and perform various movement skills independently and responsibly in accordance with the Learning Outcomes of Phase E. One of the important learning materials included in this curriculum is floor gymnastics, particularly the forward roll, which serves as a fundamental skill for mastering more advanced gymnastic movements (Mahmudah et al., 2022).

The forward roll is a basic gymnastic skill requiring integrated motor coordination, balance, flexibility, body control, and confidence. The successful execution of a forward roll depends on proper body positioning from the initial squat stance, shoulder contact with the mat, rolling mechanics, and the final standing position (Ramdan et al., 2024). Students who fail to master these technical elements often experience difficulties in performing the movement effectively and safely. Furthermore, inadequate mastery of forward roll techniques may negatively influence students' motivation and self-confidence during physical education activities.

Motor skill acquisition is a complex learning process involving repeated practice and continuous feedback. According to Prasetyo et al. (2025), motor skills are characterized by the ability to execute coordinated movement patterns with high levels of precision, consistency, and efficiency. However, many students encounter difficulties in understanding their own movement errors because traditional physical education instruction frequently relies on verbal explanations and direct demonstrations that provide limited opportunities for individualized feedback. Consequently, students may repeat incorrect movement patterns without realizing their mistakes.

Several studies conducted in Indonesian schools have reported low achievement levels in floor gymnastics learning. Arifmiftakhul (2026) found that students' floor gymnastics skills remained within the moderate category despite regular instruction. Similarly, Putra (2024) reported that students at SMK Negeri 2 Makassar demonstrated inadequate forward roll performance before the implementation of an intervention program. These findings suggest that conventional instructional approaches may not sufficiently support students in developing optimal gymnastic skills. Therefore, innovative teaching strategies capable of providing individualized and meaningful feedback are required to enhance learning outcomes in floor gymnastics.

Recent developments in educational technology have encouraged the integration of digital media into physical education learning environments. One promising approach is the use of video feedback, which allows learners to observe and evaluate their own movement performances. Video feedback is defined as a learning strategy in which students' performances are recorded and subsequently reviewed to identify strengths and weaknesses in movement execution (Potdevin et al., 2018).

Research in motor learning consistently emphasizes the importance of augmented feedback in improving movement performance. According to Wulf and Lewthwaite (2016), external feedback facilitates motor learning by enhancing learners' awareness of

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movement quality and promoting self-regulated learning behaviors. Through video feedback, learners receive visual information that complements intrinsic sensory feedback, enabling them to recognize technical errors more accurately.

Several international studies have demonstrated the effectiveness of video-based learning interventions in sports and physical education settings. Atekin and Kara (2024) found that physical education instruction supported by visual feedback significantly improved students' movement competence compared to conventional teaching methods. Likewise, Casey et al. (2021) reported that video-assisted learning enhanced students' engagement and skill acquisition in physical education contexts. Similar findings were reported by O'Loughlin et al. (2023), who concluded that video analysis promotes reflective practice and accelerates motor skill development among adolescent learners.

Within gymnastics education, video feedback has shown considerable potential for improving technical performance. Research conducted by Potdevin et al. (2018) revealed that students receiving video feedback demonstrated superior performance improvements compared to students receiving traditional verbal feedback alone. Additionally, digital feedback systems have been found to increase students' motivation, self-efficacy, and active participation during physical education lessons (Liu et al., 2022).

In Indonesia, studies examining the use of technology in physical education have gradually increased. Several researchers have investigated the utilization of learning videos, mobile applications, and multimedia-based instruction to improve students' movement skills and learning motivation (Suryadi et al., 2022; Kurniawan et al., 2023). However, most of these studies have focused primarily on instructional videos as demonstration tools rather than as instruments for individualized performance feedback.

Although numerous studies have highlighted the positive effects of digital technology on physical education learning outcomes, several limitations remain evident in the existing literature. First, most previous studies emphasize the use of video as a teaching aid for delivering instructional content rather than as a personalized feedback mechanism. Consequently, empirical evidence regarding the effectiveness of individualized video feedback in Indonesian physical education settings remains limited. Second, many studies focus on sports skills such as basketball, volleyball, soccer, or athletic activities, while investigations concerning floor gymnastics skills, particularly forward rolls, are still relatively scarce. Considering that forward roll mastery requires precise technical execution and body awareness, this skill presents a suitable context for examining the effectiveness of visual feedback interventions. Third, previous research generally evaluates teacher-generated feedback without incorporating collaborative learning strategies. The integration of peer-assisted video analysis, where students discuss and evaluate recorded performances in small groups, remains underexplored. Such an approach has the potential to foster critical thinking, social interaction, and deeper reflection on movement performance. Fourth, limited classroom action research has been conducted in Indonesian senior high schools to investigate the

practical implementation of video feedback within authentic PJOK learning environments. Therefore, evidence-based recommendations specifically relevant to Indonesian teachers are still lacking. These gaps indicate the need for research that examines how video feedback can be implemented as a personalized learning intervention and how it contributes to improving students' forward roll skills in the context of classroom-based physical education.

Based on the identified problems and research gaps, this study aims to: (1) describe the implementation process of video feedback in forward roll learning among Grade X students at State Senior High School 2 Martapura, and (2) examine the effectiveness of video feedback in improving students' forward roll skills. The novelty of this study lies in several aspects. First, video feedback is utilized not merely as an instructional demonstration medium but as an individualized performance assessment tool through which students observe and analyze their own movement execution. This approach transforms students from passive recipients of information into active participants in the learning process. Second, the study integrates peer-feedback activities supported by video analysis during the second action cycle. Students collaboratively review recorded performances, discuss movement errors, and formulate corrective strategies. This innovation combines technological feedback with social-constructivist learning principles. Third, the research contributes empirical evidence regarding the effectiveness of video feedback within the Indonesian senior high school physical education context, particularly in floor gymnastics instruction. Such evidence remains relatively limited in both national and international literature.

In conclusion, the mastery of forward roll skills remains a significant challenge for many senior high school students due to technical difficulties, insufficient individualized feedback, and limitations in conventional instructional methods. Advances in educational technology provide opportunities to address these challenges through video feedback interventions that enable students to observe, analyze, and improve their movement performances systematically. Given the limited empirical evidence concerning the application of personalized video feedback and peer-assisted analysis in Indonesian physical education settings, this study seeks to fill an important gap in the literature. The findings are expected to contribute both theoretically and practically to the development of innovative PJOK learning strategies that enhance motor skill acquisition, student engagement, and learning outcomes in floor gymnastics education.

METHODS

This research is a Classroom Action Research (CAR) that is collaborative and participatory in nature (Arikunto, 2021). The research design refers to the Kemmis and McTaggart model, which consists of four components in each cycle, namely planning, acting, observing, and reflecting. This model is chosen because its flow is systematic and suitable for the context of improving classroom learning. The research was conducted in class X-1 at Senior High School 2 Martapura during the even semester of the 2025/2026

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academic year. This research used a total sampling technique where all students of class X-1, totaling 35 students, consisting of 18 male students and 17 female students, were involved (Maulana et al., 2024). The selection of class X-1 was based on the results of an initial observation which showed the lowest level of learning completeness compared to other classes, namely only 37.14% of students met the Learning Achievement Criteria (KKTP ≥ 75).

The research instruments used include: (1) a rubric for assessing forward roll skills, which consists of four assessment aspects, namely initial posture (score 0-3), execution of movement (score 0-4), final posture (score 0-3), and confidence (score 0-3) with a maximum score of 13 points; (2) observation sheets for teacher and student activities; and (3) recording devices such as a smartphone and tripod for video feedback purposes. The final score is calculated using the formula: Score = (Total Score/13) × 100. Students are considered to have completed the task if they obtain a score ≥ 75. Data collection techniques were carried out through skill performance tests of the forward roll at the end of each cycle, observations of the learning process, and documentation. Data analysis used comparative descriptive techniques, namely by comparing the results of the pre-cycle, Cycle I, and Cycle II based on the class average score, the percentage of classical completeness, the highest score, and the lowest score. The research success indicator is determined if the classical completeness reaches at least 75% of all students.

RESULTS AND DISCUSSION

Result

Pre Cycle

The initial condition data (pre-cycle) was obtained from a performance test conducted in February 2026 before the implementation of actions. The pre-cycle results showed that out of 35 students in class X-1, only 13 students (37.14%) managed to reach the KKM with a score ≥ 75.00, while 22 students (62.86%) had not completed it. The class average score in the pre-cycle was 64.18, which falls into the Poor category. The highest score achieved was 84.62 by three students, while the lowest score was 38.46. Observed technical problems included: improper placement of hands and head at the start, uncoordinated rolling during the transition phase, and feelings of fear among some female students.

Table 1.
Pre-Cycle Result Data

Description	Result
Complete	13 student (37,14%)
Incomplete	22 student (62,86%)
Average	64,18
Highest Score	84,62
Lowest Score	38,46

In the pre-cycle, out of 35 students in grade X-1, only 13 students (37.14%) managed to achieve KKTP with a score ≥ 75.00, while 22 students (62.86%) had not yet

completed. The class average score was 64.18, which falls into the Poor category, with the highest score being 84.62 and the lowest score 38.46. This data confirms the need for more innovative and feedback-based learning improvement measures. The results of the observation of learning activities in Cycle I showed that the implementation of video feedback went well, although there were still some technical issues, such as long recording queues because it was conducted individually. Students appeared enthusiastic when watching their own movement recordings and actively asked the teacher about mistakes seen in the video.

Cycle I

In Cycle I, the action in the form of implementing individual video feedback was carried out over two meetings in March 2026. Each student was recorded while performing a forward roll, then the recording was played back and analyzed together with the teacher based on the assessment rubric. The results of the final performance test of Cycle I showed improvement: the number of students achieving proficiency increased to 21 students (60.00%), the class average score increased to 73.19 (Fair category), the highest score reached 92.31, and the lowest score increased to 46.15. Nevertheless, the classical completeness had not yet reached the minimum target of 75%.

Table 2.
Cycle I Results Data

Description	Result
Complete	21 student (60%)
Incomplete	14 student (40%)
Average	73,19
Highest Score	92,31
Lowest Score	46,15

Cycle II Results

Cycle II was carried out in April 2026 over two meetings. The final performance test results of Cycle II showed a very significant improvement: 31 students (88.57%) successfully reached the KKM, the class average score reached 79.56 (Good category), the highest score remained 92.31, and the lowest score increased to 61.54. The research success indicators have been achieved because the classical completeness of 88.57% exceeded the target of 75%. Four students who were still incomplete in Cycle II showed the main obstacles in aspects of self-confidence and movement execution.

Table 3.
Cycle II Results Data

Description	Result
Complete	31 student (88,57%)
Incomplete	4 student (11,43%)
Average	79,56
Highest Score	92,31
Lowest Score	61,54

Discussion

The main finding of this study is the consistent and significant improvement in forward roll skills from the pre-cycle to Cycle II. Classical completeness increased from

37.14% to 60.00% in Cycle I, then reached 88.57% in Cycle II, surpassing the established success indicator (≥ 75%). This improvement occurred gradually and measurably in each cycle, indicating that video feedback has a real and sustainable impact on improving students' movement techniques.

These findings are in line with and reinforce the research results (Atekin, B dan Kara, 2024) which proves that augmented video feedback significantly improves the development of motor skills in high school students in physical education compared to the group that only received verbal feedback. The mechanism explaining this effectiveness is the ability of video feedback to provide augmented feedback information that complements the intrinsic feedback from the students' proprioceptive system (Moinuddin et al., 2021). When students can watch recordings of their own movement performances, they are able to build a more accurate internal representation of the movements, which is an important foundation in motor learning.

This research is also consistent with the scoping review (Hegi et al., 2023) which emphasizes that technology-based visual feedback supports complex motor learning in various sports. Nationally, these findings reinforce the research results at at Senior High School 2 Makassar (Putra, 2024) which concluded that the application of video media in forward roll learning significantly improves students' abilities. However, this study is conceptually different because it uses videos of students' own performances (personal video feedback), rather than general teacher demonstration videos. It is this aspect of personality that makes video feedback more effective, because students can directly identify specific mistakes in their own movements.

A greater improvement from Cycle I to Cycle II compared to from pre-cycle to Cycle I indicates that methodological improvements in Cycle II, particularly the implementation of peer feedback in small groups, had a significant impact. Research (Silaban et al., 2025), supporting this finding by concluding that media-based learning combined with active student engagement significantly increases motivation and learning participation. Peer feedback encourages students to learn from the perspective of their peers, which according to Vygotsky's constructivist theory is an effective form of social learning through the zone of proximal development.

The incompleteness of four students in Cycle II (11.43%) can be explained through psychological factors mentioned by (Mahmudah et al., 2022), namely a lack of self-confidence that consistently affects the quality of movement execution. This factor is the biggest limitation of video feedback in the context of short-duration PTK; psychological interventions require a longer time and a more personal approach. Another limitation of this study is the absence of a control group, which makes causal comparisons impossible to claim definitively; the PTK design is indeed not intended for that, but rather to demonstrate improvement in the context of a real classroom in cycles. Further research with a quasi-experimental design is needed to confirm the causal effects of video feedback.

The practical contribution of this research is to show that video feedback can be applied using devices already available in schools (smartphones and tripods) without

requiring expensive technology investments. This addresses concerns about limited access to technology in Indonesian schools and demonstrates that technology-based learning innovations can be carried out pragmatically and efficiently.

CONCLUSION

Based on the results of the research and discussion that have been described, it can be concluded that the implementation of video feedback media effectively and significantly improves the forward roll skills of 10th-grade students at Senior High School 2 Martapura. The improvement occurred consistently from the pre-cycle to Cycle I and continued to Cycle II, marked by an increase in classical completeness from initially less than two-fifths of the students to almost nine out of ten students successfully achieving the learning objective criteria. The class average score also shifted from the poor category to the good category, indicating an overall improvement in the quality of learning. The implementation of effective video feedback in this study was not merely a matter of simply recording and replaying videos, but involved a structured movement analysis process based on an assessment rubric, which was then reinforced with a peer feedback component in small groups during the second cycle. This combination encouraged students to actively engage in identifying movement errors, reflecting on their own performance, and making targeted and meaningful improvements. This study recommends that PE teachers integrate video feedback as a regular learning strategy in motor skills material, particularly floor gymnastics, because it can be implemented using devices already available at school without significant technological investment. For future researchers, it is advised to use a quasi-experimental design with a control group to strengthen the causal validity of the findings, to examine affective and cognitive aspects in addition to psychomotor, and to explore the application of video feedback in other PE materials such as athletics or ball games.

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