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IMPROVING LEARNING OUTCOMES IN BACKBEND FLOOR GYMNASTICS THROUGH INTERACTIVE TEACHING FOR YEAR XI TKI STUDENTS AT THE SMK YAYASAN PHARMASI

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Abstract

The persistently low levels of student activity, self-confidence, and learning outcomes in the floor exercise backbend have become a challenge in Physical Education and Health (PJOK) lessons for Year XI TKI students at SMK Yayasan Pharmasi. Most students were still reluctant to perform the backbend, lacked self-confidence, and had not yet mastered the correct movement technique. This study aimed to improve students' activity, self-confidence, and learning outcomes through interactive learning. The study employed Kurt Lewin's Classroom Action Research (CAR) model, comprising the stages of planning, action, observation, and reflection. The research was conducted over two cycles involving 28 students. Data were collected through observation, performance assessment, documentation, and field notes. The results showed that student activity increased from 68% in Cycle I to 94% in Cycle II, whilst self-confidence increased from 58% to 90%. Students' mean scores also improved from 81.50 to 93.18, and learning mastery increased from 71.43% to 100%. These improvements occurred after learning was conducted using videos, Zep Quiz, peer tutors, small-group exercises, and ball-based assistance. The research findings indicate that interactive learning plays a significant role in enhancing students' engagement, self-confidence and ability to perform the backbend movement. Interactive learning can serve as an effective alternative for improving learning outcomes in Physical Education, particularly in the area of floor gymnastics involving the backbend movement.

Keywords: Learning Outcomes, Floor Exercises, Backbend, Interactive Learning, Physical Education

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INTRODUCTION

Physical Education, Sport, and Health (PJOK) plays an important role in developing students' physical, mental, social, and emotional competencies through structured learning experiences (Adi S et al., 2023; Arbanisa & Adi, 2025). Physical education has been shown to improve students' physical fitness, motor skills, social skills, and self-confidence (Adi et al., 2023; Silva et al., 2022). In addition, structured physical activity contributes to the development of self-efficacy and supports students' academic achievement (Latino et al., 2023).

One of the PJOK topics studied in Year XI is floor gymnastics. Floor gymnastics is a movement

activity performed on a mat and requires balance, coordination, strength, flexibility, and self-confidence. One of the fundamental movements in floor gymnastics is the backbend. The backbend is important to learn because it can improve students' fundamental motor skills, physical fitness, and self-confidence. Mastery of motor skills is also associated with improvements in students' quality of life and social competence (Xie et al., 2023). Furthermore, the development of movement skills can support students' ability to solve problems and adapt to various movement situations (Iorga et al., 2023).

Based on preliminary observations conducted in Class XI TKI at SMK Yayasan Pharmasi, many students experienced difficulties in performing the backbend correctly. Of the 28 students observed, 18 students were unable to perform the movement properly. Several students appeared afraid of falling, lacked flexibility, showed low self-confidence, and had difficulty understanding the correct positioning of the hands and feet during movement execution. These difficulties may be influenced by differences in students' motor coordination abilities, indicating the need for gradual practice and more intensive guidance in learning the backbend movement (Gowen et al., 2023).

The low performance of students in learning the backbend movement is also influenced by the learning process implemented in the classroom. Learning activities are still predominantly conducted through verbal explanations and simple demonstrations with limited use of varied instructional media (Adi S et al., 2024). As a result, students tend to become passive, less engaged, and have difficulty understanding the correct stages of movement execution. Such conditions are particularly problematic in motor skill learning because students require active participation, repeated practice, observation, and feedback to develop movement competence (Skulmowski & Xu, 2022). Previous research by Pujiyanti & Setyawan (2024) have shown that conventional learning approaches are less effective because they do not actively engage students and often fail to accommodate diverse learning needs. In contrast, interactive learning can enhance student motivation, engagement, and learning outcomes by involving students directly in the learning process (Gui et al., 2023).

Previous research conducted at SMK Yayasan Pharmasi demonstrated that audio-visual media could improve students' literacy skills in learning backward roll gymnastics movements (Pujiyanti & Setyawan, 2024). However, the study focused primarily on cognitive and literacy outcomes and was limited to backward roll material taught to Year X students. In addition, previous studies have paid limited attention to students' learning activity, self-confidence, and practical performance in more complex floor gymnastics skills such as the backbend. Considering that the backbend requires not only cognitive understanding but also motor coordination, flexibility, balance, and self-confidence, further investigation remains necessary. Unlike previous studies that focused on audio-visual media and cognitive outcomes, the present study integrates instructional videos, Zep Quiz, peer tutoring, pair practice, ball-assisted activities, and direct practice on mats within an interactive learning framework. The novelty of this study lies in examining the effectiveness of this integrated interactive learning approach in improving students' learning activity, self-confidence, and learning outcomes in performing the backbend.

Interactive learning is a student-centred learning approach that actively involves learners in the learning process through interaction with teachers, peers, learning media, and learning activities (Abiltarova et al., 2022). This approach is characterised by active participation, collaboration, immediate feedback, and meaningful engagement during learning (Blyznyuk & Kachak, 2024; Yang, 2023). In physical education, interactive learning is particularly relevant because motor skills are developed through active movement experiences, repeated practice, social interaction, and direct feedback (Ginting & Ramadhan, 2024). In this study, interactive learning was implemented through the use of PowerPoint presentations, instructional videos, Zep Quiz, peer tutoring, pair work, ball-assisted practice, and direct practice using mats (Dahlan et al., 2023). Previous studies have shown that interactive media can enhance student participation, self-confidence, and understanding by creating a more engaging and collaborative learning environment (Murillo-Zamorano et al., 2021; Soenyoto et al., 2025). Furthermore, videos, visual demonstrations, and interactive activities can facilitate movement understanding and improve students' self-confidence during skill practice (Sugden et al., 2021). Therefore, the objective of this classroom action research was to examine the effectiveness of interactive learning in improving students' learning activity, self-confidence, and learning outcomes in performing the backbend among Year XI TKI students at SMK Yayasan Pharmasi.

METHODS

This study employed Classroom Action Research (CAR) based on Kurt Lewin's model, which consists of four stages: planning, action, observation, and reflection. The study was conducted in two cycles, with the reflection results from Cycle I serving as the basis for improvements in Cycle II.

The study was conducted during the second semester of the 2025/2026 academic year in Class XI TKI at SMK Yayasan Pharmasi. The participants consisted of 28 students, including 9 males and 19 females. The learning material investigated was the backbend in floor gymnastics.

The data sources in this study consisted of students, teachers, and observers. Students served as the primary source of data regarding learning activity, self-confidence, and learning outcomes in performing the backbend. The teacher provided information related to the implementation of the learning process. Two observers, namely the PJOK supervising teacher and a peer teacher, were involved in collecting observational data. Their role was to assess students' learning activity and self-confidence using structured observation sheets. To ensure objectivity, both observers used the same observation instrument and assessment criteria throughout the study.

The intervention applied in this study was an interactive learning approach. During Cycle I, learning activities were conducted using PowerPoint presentations, teacher demonstrations, pair practice, and mat-based exercises. Based on the reflection results, improvements were implemented in Cycle II through the integration of instructional videos, Zep Quiz, peer tutoring, ball-assisted practice,

and small-group activities. These improvements were intended to increase students' learning activity, self-confidence, and performance in performing the backbend.

Data were collected through observation, performance assessment, documentation, and field notes. Observation was used to assess students' learning activity and self-confidence during the learning process. Performance assessment was conducted to evaluate students' ability to perform the backbend movement. Documentation in the form of photographs was used to support the implementation of the research, whilst field notes were used to record important events occurring during the learning process.

The research instruments consisted of a student activity observation sheet, a student self-confidence observation sheet, and a backbend performance assessment rubric. Prior to implementation, all instruments were reviewed by the PJOK supervising teacher to ensure their content validity and suitability for the research objectives. Minor revisions were made based on the review results before the instruments were used in the study.

1. The student activity observation sheet assessed:
    a. Attention to teacher explanations;
    b. Participation in discussions;
    c. Participation during practice;
    d. Cooperation with peers; and
    e. Compliance with teacher instructions.
2. The student self-confidence observation sheet assessed:
    a. Willingness to attempt the movement;
    b. Confidence in performing the movement;
    c. Willingness to retry after failure;
    d. Willingness to receive guidance from teachers or peers; and
    e. Willingness to perform in front of classmates.
3. The backbend performance assessment rubric evaluated:
    a. Starting position;
    b. Hand position;
    c. Foot position;
    d. Body flexibility;
    e. Balance; and
    f. Final posture.

Data were analysed using descriptive quantitative techniques. Student activity, self-confidence, and learning mastery were analysed using percentage calculations, whilst learning outcomes were analysed using mean scores.

Observational data were analysed by calculating the percentage of students who achieved each observation indicator. The ideal score for each observation indicator was determined based on the total number of students participating in the study (N = 28). The percentage scores were interpreted using

the following criteria: 81-100% = Very High, 61-80% = High, 41-60% = Moderate, 21-40% = Low, and 0-20% = Very Low.

Performance assessment scores obtained from the backbend performance rubric were converted into a scale of 0-100 by dividing the score obtained by the maximum possible score and multiplying the result by 100. Learning mastery was determined according to the school's minimum mastery criterion (MMC), and students achieving scores equal to or above the MMC were classified as having achieved mastery.

The study was considered successful when at least 75% of students achieved the predetermined mastery criterion and there was an improvement in learning activity, self-confidence, and backbend performance from Cycle I to Cycle II.

RESULTS AND DISCUSSION

1. Implementation of cycle I
   a. Planning stage

      During the planning stage of cycle I, the researcher developed teaching modules for floor gymnastics, prepared a simple PowerPoint presentation, arranged mats, designed observation sheets for student activity and confidence, created a rubric for assessing gymnastics skills, and prepared learning documentation.

   b. Implementation stage

      The implementation of actions in cycle I was carried out in accordance with the teaching modules that had been developed. The teacher explained the concept and basic techniques of backbend using a simple PowerPoint presentation. The teacher then demonstrated the backbend movements, and the pupils were asked to practice in pairs using mats. In cycle I, some pupils still appeared afraid to attempt the backbend movements. Several pupils also lacked confidence and did not yet understand the correct positioning of their hands, feet, and back when performing the movements.

   c. Observation phase

      The results of the observation of student activities in cycle I can be seen in the following table:

Table 1. Student Learning Activity in Cycle I

Activity Indicator	***Score Obtained***	***Ideal Score***	***Percentage (%)***	***Category***
Paying attention to teacher explanations	20	28	71	High
Asking or answering questions	15	28	54	Moderate
Participating in backbend practice	19	28	68	High
Cooperating with classmates	21	28	75	High
Following teacher instructions	20	28	71	High

Average	19	28	68	High

Source: Processed Research Data (2026)

Table 1 shows that the average student learning activity in Cycle I reached 68%, which was categorised as high. However, the indicator related to asking and answering questions obtained the lowest percentage (54%), indicating that student participation in classroom interaction had not yet developed optimally.

The results of the observation of student confidence in cycle I can be seen in the following table:

Table 2. Student Self-Confidence in Cycle I

Self-Confidence Indicator	*Score Obtained*	*Ideal Score*	*Percentage (%)*	*Category*
Willingness to attempt the backbend	16	28	57	Moderate
Not afraid of falling	14	28	50	Moderate
Willingness to retry after failure	17	28	61	High
Willingness to receive guidance	20	28	71	High
Willingness to perform in front of classmates	14	28	50	Moderate
Average	16	28	58	Moderate

Source: Processed Research Data (2026)

Based on the table, the average level of students' confidence in cycle I reached 58%. This result indicates that the majority of students are still afraid and lack confidence when performing the backbend movement.

The learning outcomes for the backbend skill in cycle I can be seen in the following table:

Table 3. Students' Learning Outcomes in Cycle I

Number of Students		*Class Average Score*	*Percentage*	*Category*
Pass	*Not Passed*			
20	8	81.50	71.43%	Good

Source: Processed Research Data (2026)

Table 3 shows that 20 students achieved mastery, whilst 8 students had not yet achieved mastery. The mean score obtained in Cycle I was 81.50, with a learning mastery percentage of 71.43%, which was categorised as good.

d. Reflection stage

Based on the results of observations in cycle I, there are still several challenges in the learning process. Some pupils are still afraid to perform the backbend movement, lack confidence, and do not yet optimal. Therefore, improvements need to be made in cycle II by using more interactive teaching methods, such as educational videos, Zep Quiz, peer tutoring, the use of balls as aids, and small-group practice.

2. Implementation of cycle II

a. Planning stage

During the planning stage of cycle II, the research made improvements based on the reflections from cycle I. preparations included revising the teaching module, preparing instructional videos for the backbend movement, setting up Zep Quiz for assessment, providing balls as training aids, organising peer tutors and small-group practice sessions, and preparing observation and assessment tools.

b. Implementation stage

In cycle II, the teacher explained the material using a more engaging PowerPoint presentation and instructional videos. Students were shown examples of the correct backbend movement as well as common mistakes. Subsequently, students practised in groups with the aid of balls and peer tutors. The teacher also used Zep Quiz to enhance students' interest and understanding of the backbend material. In cycle II, students appeared more active, more confident, and more willing to attempt the backbend movement.

c. Observation phase

The results of the observation of student activities in cycle II can be seen in the following table:

Table 4. Student Learning Activity in Cycle II

Activity Indicator	***Score Obtained***	***Ideal Score***	***Percentage (%)***	***Category***
Paying attention to teacher explanations	26	28	93	Very High
Asking or answering questions	24	28	86	Very High
Participating in backbend practice	25	28	89	Very High
Cooperating with classmates	28	28	100	Very High
Following teacher instructions	28	28	100	Very High
Average	26	28	94	Very High

Source: Processed Research Data (2026)

Based on the table, the average student activity in cycle II reached 94%. These results indicate that student activity during learning improved compared to cycle I.

The results of the observation of student confidence in cycle II can be seen in the following table:

Table 5. Student Self-Confidence in Cycle II

Self-Confidence Indicator	***Score Obtained***	***Ideal Score***	***Percentage (%)***	***Category***
Willingness to attempt the backbend	25	28	89	Very High
Not afraid of falling	24	28	86	Very High

Willingness to retry after failure	26	28	93	Very High
Willingness to receive guidance	27	28	96	Very High
Willingness to perform in front of classmates	24	28	86	Very High
Average	25	28	90	Very High

Source: Processed Research Data (2026)

Based on the table, the average level of students' confidence in cycle II reached 90%. These results indicate that students have become more confident and willing to perform the backbend movement.

The learning outcomes for the backbend skill in cycle II can be seen in the following table:

Table 6. Students' Learning Outcomes in Cycle II

Number of Students		***Class Average Score***	***Percentage***	***Category***
Pass	***Not Passed***			
28	0	93.18	100%	Very Good

Source: Processed Research Data (2026)

Table 6 shows that all students achieved mastery in Cycle II. The mean score increased to 93.18, with a learning mastery percentage of 100%, which was categorised as very good.

d. Reflection stage

Based on the results of observations in cycle II, there was an increase in student activity, confidence and learning outcomes compared to cycle I. Most students were more confident in performing the backbend movement and were able to follow the lesson well. The use of video, Zep Quiz, peer tutors and balls as training aids made students more interested and helped them understanding the backbend technique more easily.

3. Summary of results for cycle I and cycle II

Table 7. Summary of Results from Cycle I and Cycle II

Aspects	***Cycle I***	***Cycle II***	***Improvement***
Student activity	68%	94%	26
Student confidence	58%	90%	32
Average score	81.50	93.18	11.68
Learning attainment	71.43%	100%	28.57%

Discussion

Based on the results of the research conducted, interactive learning is able to improve students' activity levels, self-confidence and learning outcomes in the backbend floor exercise. Before the intervention, the majority of students still struggled to perform the backbend movement (Sukackė et al., 2022). The students appeared afraid of falling, lacked confidence, and were unable to correctly position their hands, feet, and body arch (Toros et al., 2023). This situation indicates that the backbend

movement requires not only strength and flexibility but also good motor coordination, as students must be able to integrate the movements of the hands, feet, back, and body balance simultaneously. It is this difficulty with motor coordination that prevents some students from performing the backbend movement optimally (Müller et al., 2023). Furthermore, the fear experienced as the body begins to arch backwards causes students to tend to stop the movement before reaching the correct backbend position.

In Cycle I, learning was conducted through teacher explanations, movement demonstrations, and pair-based practice. Although improvements were observed compared to the initial condition, the results were not yet optimal. Several students remained passive, hesitated to attempt the backbend, and experienced difficulties maintaining proper body balance and coordination. These findings indicate that the learning approach used in Cycle I was still relatively teacher-centred and provided limited opportunities for active engagement, visual reinforcement, and peer support. Consequently, students tended to depend on teacher instructions and had not yet developed sufficient confidence to practise independently. These shortcomings formed the basis for improving the intervention in Cycle II through the integration of instructional videos, Zep Quiz, peer tutoring, ball-assisted practice, and small-group activities.

In Cycle II, the shortcomings identified in Cycle I were addressed through the integration of instructional videos, Zep Quiz, peer tutoring, small-group activities, and ball-assisted practice. These strategies provided greater visual support, active participation, and collaborative learning opportunities, enabling students to understand the stages of the backbend movement more clearly and practise with increased confidence. Instructional videos allowed students to observe correct movement execution directly (Adi et al., 2024), whilst the support ball reduced fear and facilitated body arching during practice (Reguera-López-de-la-Osa et al., 2023). In addition, peer tutoring and small-group activities created a supportive learning environment in which students could assist one another and learn through social interaction (Till et al., 2022; van der Graaf et al., 2022). Previous studies have shown that combining video-based learning with peer learning can improve students' confidence and satisfaction (Wong et al., 2023), whilst interactive media can enhance learning motivation and practical skill performance (Turan & Karabey, 2023).

The increase in student activity in cycle II indicates that interactive learning can make students more engaged throughout the learning process. Students did not merely listen to the teacher's explanations, but also actively watched videos, engaged in discussions, practiced movements, and took part in assessments using Zep Quiz. These varied activities helped students to remain focused and prevented them from becoming bored. This is in line with the view that physical activity integrated into learning can increase student engagement and improve cognitive functions that support learning success (Oliveira et al., 2023). Thus, interactive learning not only improves motor skills but also helps students understand the material more deeply (Wibowo et al., 2024).

In addition to their activities, the students' confidence also saw a significant increase. In cycle I, some students were still afraid to try because they were worried about falling and did not yet believe in their own abilities. After being provided with balls, videos, and peer tutors in cycle II, the students began to feel more confident and were braver in attempting the movements independently. Support from peers also made the pupils feel more comfortable and less afraid of making mistakes (Houser & Kriellaars, 2023). These finding suggest that learning involving social interaction and group support can help boost pupils' confidence. This is consistent with research indicating that effective physical activity programmes in schools can enhance motivation, social outcomes, and positive relationships between pupils and teachers (Arbanisa & Adi, 2025; He et al., 2023; S et al., 2023).

The increase in pupils' activity and self-confidence had a direct impact on their learning outcomes (Myszka et al., 2023). In Cycle II, the majority of pupils were able to perform the backbend more effectively and in accordance with the expected technique. Students demonstrated improved hand and foot positioning, better balance, and greater stability in maintaining the backbend posture. These findings indicate that interactive learning can facilitate the gradual development of motor skills by providing students with more concrete and meaningful learning experiences. Physical education is fundamentally aimed not only at improving physical competence but also at developing students' self-confidence, social skills, and overall learning abilities (Latino et al., 2023).

The results of this study indicate that interactive learning can be an effective approach in Physical Education, Sport, and Health (PJOK), particularly for teaching the backbend movement. The use of instructional videos, Zep Quiz, peer tutoring, small-group activities, and ball-assisted practice not only helped students understand the movement more effectively but also enhanced their self-confidence and motivation during the learning process. A notable contribution of this study lies in the integration of multiple interactive learning strategies within a single instructional framework to address both the technical and psychological challenges associated with learning the backbend. Furthermore, this study demonstrates the effectiveness of classroom action research in improving backbend learning outcomes among vocational high school students. Therefore, interactive learning can create a more engaging, supportive, and effective learning environment for developing students' motor skills and self-confidence.

CONCLUSION

Interactive learning effectively improved student activity, self-confidence, and learning outcomes in learning the backbend among Year XI TKI students at SMK Yayasan Pharmasi. The integration of instructional videos, Zep Quiz, peer tutoring, small-group activities, and ball-assisted practice increased student engagement during the learning process and helped students perform the backbend movement more effectively. The findings indicate that interactive learning can address both

the technical and psychological challenges commonly encountered in learning the backbend, resulting in improved movement performance and learning achievement. A notable contribution of this study is the application of multiple interactive learning strategies within a classroom action research setting in a vocational high school context. Therefore, interactive learning can be considered an effective alternative for teaching floor gymnastics in Physical Education, Sport, and Health (PJOK). Future research is recommended to explore the use of more advanced learning technologies, such as digital applications, augmented reality, or other interactive media, and to examine their effectiveness in different physical education topics and educational settings.

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