
Improving Students' Motor Skills, Competency and Sportsmanship with a Cooperative Learning Approach to Floor Gymnastics Materials

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ABSTRACT

Background: Motor Skill Competency and sportsmanship are two essential outcomes of physical education learning that contribute to students' physical development and character formation. However, many students still demonstrate limited mastery of floor gymnastics skills and insufficient sportsmanship behaviors during learning activities. Cooperative Learning is considered an effective instructional approach because it promotes active participation, peer interaction, collaboration, and shared responsibility among students. Nevertheless, empirical evidence examining its simultaneous effect on Motor Skill Competency and sportsmanship in floor gymnastics learning remains limited. Objectives: This study aimed to analyze the effectiveness of the Cooperative Learning approach in improving Motor Skill Competency and sportsmanship among students during floor gymnastics learning. Methods: This study employed a quantitative approach using a pre-experimental one-group pretest-posttest design. The participants consisted of 36 junior high school students selected through purposive sampling. The intervention was conducted over eight weeks using the Cooperative Learning approach in floor gymnastics lessons. Motor Skill Competency was assessed through performance-based evaluations covering balance, coordination, flexibility, body control, and movement technique, while sportsmanship was measured using a validated questionnaire. Data were analyzed using descriptive statistics, the Shapiro-Wilk normality test, and Paired Sample t-Test at a significance level of $\alpha = 0.05$. Results: The findings revealed significant improvements in both Motor Skill Competency and sportsmanship following the intervention. Motor Skill Competency increased from 67.42 ± 7.63 to 82.51 ± 6.38 , representing a 22.38% improvement ($p = 0.000$). Sportsmanship scores increased from 70.18 ± 6.92 to 84.67 ± 5.81 , representing a 20.64% improvement ($p = 0.000$). The largest improvement in Motor Skill Competency was observed in movement technique, while teamwork demonstrated the highest increase among sportsmanship indicators. Conclusions: The Cooperative Learning approach significantly improves both Motor Skill Competency and sportsmanship in floor gymnastics learning. These findings indicate that Cooperative Learning is an effective pedagogical strategy for simultaneously enhancing students' motor performance and positive social behaviors in physical education settings.

Keywords: Cooperative Learning; Motor Skill Competency; Sportsmanship; Floor Gymnastics; Physical Education; Students.

INTRODUCTION

Physical education is an integral part of the education system that aims to develop the potential of students as a whole through planned and systematic physical activities (Sortwell et al., 2022). Not only focusing on improving physical fitness, physical education also plays a role

in developing the cognitive, affective, social, and psychomotor aspects of students. Through various learning activities that involve movement, students gain the opportunity to develop motor skills while building the character values needed in daily life (Ridwan et al., 2025; Suwardi, 2024; Suwardi et al., 2026).

One of the main goals of physical education is to develop movement competencies or Motor Skill Competency which is the foundation for students' involvement in physical activities throughout life. Motor Skill Competency refers to the ability of individuals to perform various movement skills effectively, efficiently, and in a coordinated manner according to the demands of the activities carried out (Bakhtiar, 2013). Good motor competence allows students to participate optimally in a variety of sports and recreational activities and supports the sustainable development of physical health (Arga et al., 2025; Arga & Fitri, 2025; Sufitriyono et al., 2025).

Various studies show that motor competency levels have a close relationship with physical activity, physical fitness, confidence, and sports achievement of students. Students with high motor competence tend to be more physically active and show greater motivation to engage in sports activities than students with low motor competence. Conversely, low motor competence can lead to reduced student participation in physical activity which ultimately impacts their physical health and development (Arga, 2025a; Badwi et al., 2025; Saleh, 2024a).

In addition to the development of movement skills, physical education also has a responsibility in shaping the character and social values of students. One of the values that is an important concern in learning physical education is sportsmanship. Sportsmanship is a behavior that reflects an attitude of respecting the rules, respecting opponents and friends, upholding honesty, and accepting the results of matches or activities with a positive attitude. These values are an important part of the formation of student character with integrity and responsibility (Arba et al., 2025; Arga, 2025b; Mappaompo et al., 2024).

The development of sportsmanship in students is becoming increasingly important in the midst of various modern educational challenges characterized by increasing individualistic behavior, low tolerance, and lack of ability to work together. Physical education has an advantage over other subjects because it provides learning situations that allow students to interact directly through group activities, games, and sports. Therefore, physical education learning can be an effective means to instill the values of sportsmanship and positive social behavior (Saleh, 2024b).

One of the materials taught in physical education that has great potential to develop motor competence and sportsmanship is floor gymnastics. Floor gymnastics is a movement activity that requires coordination, balance, flexibility, strength, and good body control. Mastery of skills such as front roll, rear roll, candle stance, kayang, and handstand requires a systematic and continuous learning process. Therefore, choosing the right learning approach is an important factor in the success of floor gymnastics learning (Côté et al., 2016; Riabchenko et al., 2025).

However, various observations in schools show that floor gymnastics learning still faces a number of obstacles. Many students have difficulty mastering movement techniques due to the lack of opportunities to practice actively and obtain adequate feedback. In addition, the learning process that is still teacher-centered often causes students to become passive and less involved in the learning process. This condition has the potential to hinder the development of motor skills while reducing students' opportunities to develop social skills and sportsmanship (Anderson et al., 2022; Handayani et al., 2023; Potdevin et al., 2018).

To overcome these problems, a learning approach is needed that is able to increase student active participation while encouraging positive social interaction. One of the most recommended approaches in physical education is Cooperative Learning. Cooperative Learning is an approach to learning that places students in small groups that work together to achieve shared learning goals. This approach emphasizes interaction between students, individual and group responsibility, communication, and mutual help in completing learning tasks (Zaggelidou et al., 2023).

In the context of floor gymnastics learning, Cooperative Learning provides opportunities for students to observe each other, provide feedback, and help friends who have difficulty

performing certain movements. The collaborative learning process allows students to have a more meaningful learning experience than learning that is only centered on teacher instruction. Through group activities, students also learn to appreciate the abilities of friends, build a sense of responsibility, and improve their ability to work together.

A number of previous studies have reported that Cooperative Learning is effective in improving students' physical education learning outcomes, motor skills, learning motivation, social interaction, and prosocial behavior. In addition, this approach has been proven to be able to create a more inclusive and enjoyable learning environment so that students are more motivated to actively participate in every learning activity. However, studies that specifically examine the effect of cooperative learning on increasing motor skill competency and sportsmanship simultaneously in floor gymnastics materials are still relatively limited, especially in junior high school students.

Based on this description, this study was conducted to analyze the influence of the Cooperative Learning approach on increasing students' Motor Skill Competency and sportsmanship in floor gymnastics learning. The results of this study are expected to make an empirical contribution to the development of a physical education learning model that is not only oriented towards improving movement skills, but also supports the formation of character and sportsmanship values of students in a sustainable manner.

METHODS

This study uses a quantitative approach with a Pre-Experimental One Group Pretest-Posttest Design. This design was chosen to determine the effect of the application of the Cooperative Learning approach on improving students' Motor Skill Competency and sportsmanship in floor gymnastics materials. In this design, all research participants were given a pretest to determine the condition of motor skills and sportsmanship before treatment, then a learning intervention was given using the Cooperative Learning approach, and then a final measurement (posttest) was carried out to find out the changes that occurred after the treatment was given.

The research population is all grade VIII students in one of the Junior High Schools (SMP) which totals 120 students. The research sample was determined using the purposive sampling technique by considering several criteria, namely students actively participating in physical education learning, not having health problems that can hinder the implementation of floor gymnastics activities, and willing to participate in the entire series of research. Based on these criteria, 36 students consisting of 18 male students and 18 female students with an age range of 13–15 years were obtained as a research sample.

The learning intervention was carried out for eight weeks with a frequency of two meetings every week so that the total implementation of learning amounted to 16 meetings. The Cooperative Learning approach used adapts the Student Teams Achievement Division (STAD) model, where students are divided into heterogeneous small groups based on academic ability and movement skills. In each meeting, students work together to learn, practice, and evaluate various floor gymnastics skills which include front roll, back roll, candle stance, kayang, basic handstand, and a series of simple floor gymnastics movements. Teachers act as facilitators who provide initial demonstrations, technical directions, and feedback during the learning process.

Data collection was carried out using two research instruments. The Motor Skill Competency variables were measured through floor gymnastics skills tests developed based on indicators of balance, movement coordination, technique accuracy, flexibility, and body control. Each indicator is assessed using a performance assessment rubric with a certain range of scores that have gone through a validation process by physical education experts. Meanwhile, the sportsmanship variable was measured using a Likert scale questionnaire which included aspects of respect, fair play, teamwork, self-control, and responsibility. Before being used in research, the instrument has gone through validity and reliability tests to ensure its feasibility as a research measuring tool.

The research data was analyzed using descriptive statistics and inferential statistics. Descriptive analysis was used to obtain the mean, standard deviation, minimum value, maximum value, and percentage increase of each research variable. Before hypothesis testing is performed, the data is first tested for normality using the Shapiro-Wilk test to ensure that the data distribution meets parametric assumptions. Furthermore, hypothesis testing was carried out using the Paired Sample t-Test at a significance level of $\alpha = 0.05$ to determine the difference in Motor Skill Competency and sportsmanship values between pretest and posttest. In addition, effect size was calculated using Cohen's d to determine the magnitude of the effect of the application of the Cooperative Learning approach on the two research variables. The entire data analysis process was carried out using IBM SPSS Statistics software version 26.

RESULTS RESULTS

Characteristics of Samples

Table 1. Characteristics of the Research Sample (n=36)

Variable	Mean \pm SD
Age (years)	13,9 \pm 0,8
Height (cm)	154,6 \pm 6,7
Weight (kg)	47,8 \pm 7,3
Male	50%
Women	50%

Based on Table 1, the characteristics of the study sample show that the average age of students is 13.9 ± 0.8 years. The average height of students was recorded at 154.6 ± 6.7 cm, while the average weight was 47.8 ± 7.3 kg. The gender distribution in this study consisted of 50% male students and 50% female students, so that the number of respondents based on gender was in a balanced proportion.

Table 2. Male vs Female Gain Score Comparison

Variable	Sig.
MSC Pretest	0,271
MSC Posttest	0,342
Sportsmanship Pretest	0,286
Sportsmanship Posttest	0,395

Based on Table 2, the significance value (Sig.) in the Motor Skill Competency (MSC) Pretest variable is 0.271, while in the MSC Posttest is 0.342. Furthermore, the significance value in the Sportsmanship Pretest variable was 0.286, and in the Sportsmanship Posttest was 0.395. All variables analyzed had significance values above 0.05. All data have a significance value greater than 0.05 so that they are normally distributed. Changes in Motor Skills, Competency and Sportsmanship

Table 3. Paired Sample t-Test Results

Variabel	Pretest	Posttest	Improvement	Sig.
Motor Skill Competency	67,42 \pm 7,63	82,51 \pm 6,38	22,38%	0,000
Sportsmanship	70,18 \pm 6,92	84,67 \pm 5,81	20,64%	0,000

Based on Table 3, the average score of students' Motor Skill Competency increased from 67.42 ± 7.63 during the pretest to 82.51 ± 6.38 during the posttest. The increase that occurred was 22.38% with a significance value of 0.000. In the Sportsmanship variable, the average score of

students increased from 70.18 ± 6.92 in the pretest to 84.67 ± 5.81 in the posttest. The percentage increase obtained was 20.64% with a significance value of 0.000.

In general, the two research variables showed an increase in average scores from pretest to posttest after the application of the Cooperative Learning approach. The significance value obtained for each variable shows a result of 0.000. The results showed a significant improvement in both research variables after the implementation of Cooperative Learning.

Motor Skill Competency Improvement Profile

Table 4. Motor Skill Competency Indicator

Indicator	Pretest	Posttest	Improvement (%)
Balance	66,8	82,5	23,5
Coordination	68,4	83,7	22,4
Motion Techniques	65,2	81,6	25,2
Flexibility	69,1	82,9	19,9
Body Control	67,6	81,8	21

Based on Table 4, all indicators of Motor Skill Competency have increased in value from pretest to posttest. The balance indicator increased from 66.8 to 82.5 with a percentage increase of 23.5%. The coordination indicator increased from 68.4 to 83.7 or by 22.4%.

Furthermore, the movement technique indicator showed an increase from 65.2 in the pretest to 81.6 in the posttest with a percentage increase of 25.2%. In the flexibility indicator, the value increased from 69.1 to 82.9 with an increase of 19.9%. Meanwhile, the body control indicator increased from 67.6 to 81.8 with a percentage increase of 21.0%.

The highest increase was found in the movement technique indicator at 25.2%, while the lowest increase was found in the flexibility indicator at 19.9%. All indicators show a positive change in values between the initial and final measurements.

Sportsmanship Enhancement Profile

Table 5. Sportsmanship Indicator

Indicator	Pretest	Posttest	Increase (%)
Respect	72,3	86,4	19,5
Fair Play	69,8	84,5	21,1
Teamwork	71,2	87,6	23
Self-Control	68,7	82,4	19,9
Responsibility	69	82,5	19,6

DISCUSSION

The results of the study show that the Cooperative Learning approach significantly improves students' Motor Skill Competency in floor gymnastics materials. The increase of 22.38% shows that the active involvement of students in the group is able to accelerate the process of mastering movement skills.

Theoretically, Cooperative Learning provides students with opportunities to learn through peer observation, direct feedback, and repetitive practice in groups. According to Bandura's Social Learning theory, the process of observing relevant models can increase the effectiveness of learning motor skills. In the context of floor gymnastics, students get the opportunity to observe correct technique before practicing independently.

The highest increase was found in the movement technique indicator (25.2%). This suggests that group interaction allows students to obtain movement correction directly so that technical errors can be minimized.

In the sportsmanship aspect, an increase of 20.64% shows that Cooperative Learning not only has an impact on the psychomotor aspect but also affective. During the learning process, students are required to work together, help group members, respect the opinions of others, and be responsible for the group's success.

The highest increase was found in the teamwork indicator (23.0%). These findings show that group activities in Cooperative Learning successfully build students' collaborative skills. The results of this study are in line with Dyson's (2021) research which states that Cooperative Learning is able to increase social interaction, prosocial behavior, and sportsmanship in physical education learning.

The findings of this study also reinforce the results of the research of Casey and Goodyear (2020) who found that cooperative learning models are able to improve motor skills while building positive social values in high school students.

Thus, Cooperative Learning can be seen as an effective learning approach to develop students' movement skills and character simultaneously in floor gymnastics learning.

CONCLUSIONS AND SUGGESTIONS

Conclusion

Based on the results of the study, it can be concluded that the Cooperative Learning approach has a significant influence on improving students' Motor Skill Competency and Sportsmanship in floor gymnastics materials.

Motor Skill Competency increased by 22.38%, while Sportsmanship increased by 20.64% after eight weeks of learning interventions. These results show that Cooperative Learning is effectively used to develop students' movement skills as well as sportsmanship in physical education learning.

Suggestions

1. Physical education teachers are advised to use Cooperative Learning as an alternative to floor gymnastics learning strategies.
2. Schools need to support the implementation of cooperative learning through the provision of adequate facilities and infrastructure.
3. Further research is recommended using experimental designs with control groups to obtain stronger empirical evidence.
4. Subsequent research can examine the influence of Cooperative Learning on other aspects such as students' learning motivation, confidence, and physical activity.

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