



## Correlation analysis of teachers' teaching skills and student sportsmanship in Physical Education

*Análisis de correlación entre las habilidades de enseñanza de los profesores y la deportividad de los estudiantes en Educación Física*

### Authors

Yulinar<sup>1,2</sup>  
Amung Ma'mun<sup>1</sup>  
Yunyun Yudiana<sup>1</sup>  
Nuryadi<sup>1</sup>  
Ani Kurniawati<sup>3</sup>  
Razali<sup>4</sup>  
Amiruddin<sup>4</sup>  
Syahrianursaiifi<sup>2</sup>

<sup>1</sup>Universitas Pendidikan Indonesia (Indonesia)

<sup>2</sup>Universitas Abulyatama (Indonesia)

<sup>3</sup>Universitas Garut (Indonesia)

<sup>4</sup>Universitas Syiah Kuala (Indonesia)

Corresponding author:  
Amung Ma'mun  
amung@upi.edu

Received: 09-01-26  
Accepted: 03-02-26

### How to cite in APA

Yulinar, Y., Ma'mun, A., Yudiana, Y., Nuryadi, N., Kurniawati, A., Razali, R., Amiruddin, A., & Syahrianursaiifi, S. (2026). Correlation analysis of teachers' teaching skills and student sportsmanship in Physical Education. *Retos*, 77, 663-675.  
<https://doi.org/10.47197/retos.v77.118544>

### Abstract

**Introduction:** While teachers' teaching skills are crucial for supports student character and sportsmanship, few studies have directly examined this link.

**Objective:** Building on the importance of teaching skills, this study aims to investigate the relationship between teachers' teaching skills and students' sportsmanship in PE. **Methodology:** To explore this relationship, the study used a correlational method involving 105 students. Data on teachers' teaching skills were measured through three aspects: opening, organizing, and closing the lesson. Student sportsmanship data were measured using the Student Sportsmanship Scale in Physical Education (S3-PE), which includes five indicators: commitment, social conventions, rules and officials, opponents, and negative approach. Data were analyzed using descriptive statistics and Spearman correlation.

**Results:** The analysis revealed a positive and significant correlation between teachers' teaching skills and students' sportsmanship. Specifically, the aspect "Organizing learning" had the highest correlation with students' sportsmanship ( $\rho = 0.545$ ), followed by "Closing learning" ( $\rho = 0.521$ ) and "Opening learning" ( $\rho = 0.388$ ). The overall correlation between teaching skills and student sportsmanship was moderate ( $\rho = 0.569$ ).

**Discussion:** These results suggest that teachers' teaching skills can be an important factor in shaping students' sportsmanship. Consequently, teachers need to implement teaching strategies that encourage sportsmanship through various physical education activities. **Conclusions:** In summary, teachers' skills not only improve students' physical abilities but also shape sportsmanship attitudes and behaviors that are beneficial in everyday life.

### Keywords

Teacher teaching skills; student sportsmanship; sporty behavior; sporty physical education; sporty learning.

### Resumen

**Introducción:** Aunque las habilidades pedagógicas del profesorado son fundamentales para apoyar el desarrollo del carácter y la deportividad de los estudiantes, pocos estudios han examinado directamente esta relación.

**Objetivo:** Partiendo de la importancia de las habilidades docentes, este estudio tiene como objetivo investigar la relación entre las habilidades de enseñanza del profesorado y la deportividad de los estudiantes en Educación Física.

**Metodología:** Para explorar esta relación, se empleó un método correlacional con la participación de 105 estudiantes. Los datos sobre las habilidades docentes se midieron a través de tres aspectos: apertura, organización y cierre de la lección. La deportividad de los estudiantes se evaluó mediante la *Student Sportsmanship Scale in Physical Education* (S3-PE), que incluye cinco indicadores: compromiso, convenciones sociales, reglas y árbitros, oponentes y enfoque negativo. Los datos se analizaron utilizando estadística descriptiva y la correlación de Spearman.

**Resultados:** El análisis reveló una correlación positiva y significativa entre las habilidades docentes y la deportividad de los estudiantes. Específicamente, el aspecto de *organización del aprendizaje* presentó la correlación más alta con la deportividad estudiantil ( $\rho = 0.545$ ), seguido del *cierre del aprendizaje* ( $\rho = 0.521$ ) y la *apertura del aprendizaje* ( $\rho = 0.388$ ). La correlación global entre las habilidades docentes y la deportividad de los estudiantes fue de magnitud moderada ( $\rho = 0.569$ ).

**Discusión:** Estos resultados sugieren que las habilidades de enseñanza del profesorado pueden constituir un factor importante en la formación de la deportividad de los estudiantes. En consecuencia, los docentes necesitan implementar estrategias pedagógicas que fomenten la deportividad a través de diversas actividades de Educación Física.

**Conclusiones:** En síntesis, las habilidades del profesorado no solo mejoran las capacidades físicas de los estudiantes, sino que también contribuyen a la formación de actitudes y comportamientos deportivos que resultan beneficiosos para la vida cotidiana.

### Palabras clave

Habilidades docentes; deportividad del alumnado; conducta deportiva; educación física orientada a la deportividad; aprendizaje orientado a la deportividad.



## Introduction

The formulation of international physical education curricula is designed not only to develop essential movement skills and promote lifelong engagement in physical activity, but also to incorporate and uphold the principles of sportsmanship, with teachers assuming a central role as facilitators of learning (Fernandes & Gopal, 2024; Hardman, 2008; Koc & Esenturk, 2018; Ma'mun et al., 2025). Sportsmanship, which entails compliance with regulations, gracious acceptance of defeat, avoidance of dishonesty victory, and demonstration of respect and generosity towards opponents, embodies fundamental character traits such as integrity, discipline, self-regulation, responsibility, accountability, and respect (Abakay & Buğdaycı, 2018; Görgüt & Tutkun, 2023; Karakaş & Çelik, 2023). In the context of students, these values of sportsmanship can be transferred from the competitive arena to everyday life through teaching strategies and pedagogical approach, which, in turn reinforce positive behavior and mitigate negative ones (Barney, 2021). Students who receive effective pedagogical support are better equipped to foster resilience, ethical decision-making, leadership abilities, and collaborative teamwork, in addition to cultivating empathy, emotional regulation, and constructive conflict resolution (Koc, 2017; Temel et al., 2024). Moreover, teachers can foster a healthy, competitive learning environment by implementing teaching models that facilitate the internalization of sportsmanship, thus promoting respectful interactions among students (Burgueño & Medina-Casabón, 2020). Therefore, the application of appropriate pedagogical skills-particularly those that emphasize teaching skills-serves as critical foundation for developing a generation of young individuals characterized by integrity, noble conduct, and the capacity to address social challenges in a sportsmanlike manner.

Schools must prioritize the strategic role of teachers in mastering pedagogical and teaching skills so that sportsmanship values can be effectively instilled through physical education lessons, extracurricular activities, and competitions, enabling students not only to understand but also to apply these values in their daily lives (Giray, 2021; Tiryaki, 2023). In this context, teachers and coaches should be capable of utilizing appropriate learning models and serve as pedagogical exemplars to promote sportsmanship in students (Alfarid, 2021; Pennington, 2017). However, a study by Bolter et al. (2018) showed that although teachers and coaches may have the intention and confidence to carry out their pedagogical roles, these messages and behaviors are not always fully embraced by students, emphasizing the importance of continuous pedagogical training to improve the effectiveness of conveying sportsmanship values. Problems of unsportsmanlike behavior persist despite these efforts, both in school and competitive contexts, as demonstrated by the report by Pelegrín-Muñoz et al. (2013) and the experience of the Okigwe Football League (1949-1951), which faced team protests and government intervention (Okpalaeke & Ekah, 2024). This suggests that a systematic pedagogical approach based on effective learning models, supported by ongoing teacher training, can enhance the internalization of sportsmanship values and help students manage wins and losses with grace (Burgueño & Medina-Casabón, 2020; Karakaş & Çelik, 2023; Paramida et al., 2023).

Numerous studies, both domestically and internationally, emphasize that improving students' sportsmanship is highly dependent on teachers' pedagogical expertise in designing and implementing learning that integrates moral values, cooperation, and active involvement in sports or game activities. For example, Burgueño and Medina-Casabón (2020) demonstrated that teachers' implementation of an effective Sports Education Model (SEM) significantly improved students' sportsmanship orientation, including respect for opponents and adherence to game rules. Temel et al. (2024) further emphasized that the use of traditional games in school activities can also enhance students' sense of school ownership and sportsmanship, highlighting the importance of teachers adapting learning models to suit the student's context. Furthermore, family support plays an additional role; however, the effectiveness of internalizing sportsmanship values remains contingent upon teachers' ability to implement appropriate pedagogical strategies and receive adequate pedagogical training (Eröz et al., 2024). Students with high levels of sportsmanship demonstrate greater social and personal responsibility and the ability to control violent behavior during competition (Courel-Ibáñez et al., 2019), thereby confirming that teachers' pedagogical competence in designing and implementing learning models that emphasize sportsmanship plays a crucial role in shaping students' overall positive character. Therefore, these findings underscore the importance of a physical education curriculum supported by pedagogically trained teachers to effectively internalize sportsmanship behavior beyond just sports competition (Ludwiczak & Bronikowska, 2022).



The process of embedding sportsmanship values into physical education teaching depends not only on sports activities and the social environment but is also significantly shaped by teachers' pedagogical competence. Unfortunately, research exploring the relationship between teachers' teaching skills and students' sportsmanship attitudes and behaviors remains relatively scarce. Nevertheless, these skills play a crucial role in improving student sportsmanship in schools, as physical education teachers not only teach game techniques and strategies but also serve as moral guides and role models for sportsmanship. Through strong pedagogical or teaching skills—including the ability to communicate effectively, manage the classroom, provide clear instructions, instill positive values, and implement effective teaching strategies—teachers can create a conducive learning environment and shape students' character. Teachers with strong teaching skills are able to instill sportsmanship effectively through concrete examples, such as providing equal attention to all students, acting fairly without gender bias, and recognizing every achievement (Blegur et al., 2023; Blegur, Ma'mun, Berliana, Mahendra, Bakhri, et al., 2024; Hardiansyah & Blegur, 2024; Lumba et al., 2021). Sportsmanship values can be integrated into various learning models, such as Teaching Personal and Social Responsibility (TPSR), where teachers systematically instill sportsmanship and social responsibility in sports classes (Sanchez et al., 2021). Teachers teach students to respect their opponents, play fairly, follow the rules, accept victory or defeat graciously, and provide constructive feedback that supports behavioral improvement without demeaning students. This highlights the importance of ongoing pedagogical training to enhance teachers' capacity to shape students' sportsmanship.

A well-designed learning process transforms sportsmanship from a mere theoretical concept to a value internalized through students' direct engagement, with teachers' teaching skills serving as a key factor in shaping students' character to be sporty, ethical, and capable of competing healthily by celebrating victory and appreciating defeat. Therefore, this study seeks to answer: Is there a relationship between teachers' teaching skills and students' sportsmanship attitudes in physical education? The study aims to analyze this relationship, particularly in the context of physical education and sports, with the goal of providing practical implications for teachers. Specifically, improving teaching skills can enhance students' sportsmanship behavior, including respecting opponents, accepting victory and defeat with grace, and adhering to the rules of the game. Additionally, schools can use these findings to design teacher training programs and learning models that effectively support the internalization of sportsmanship values, ensuring that the implementation of sportsmanship in sports activities becomes more systematic and positively impact students' character development.

## Method

### *Participants*

The study population comprised students of Junior High Schools and Senior High Schools/Vocational Schools across several schools in Aceh Province and West Java Province. Respondents were selected using simple random sampling, while ensuring proportional representation to account for variations in age, grade level, and gender. This approach ensured that the data collected were sufficient for analyzing the relationship between teachers' teaching/instructional skills and students' sportsmanship in physical education. The entire data collection process adhered to ethical research principles, including obtaining school approval, parental/guardian permission, and informed consent from the students.

The sample for this study consisted of 105 students ( $M \pm SD = 13.6 \pm 1.6$ ). Based on gender characteristics, 60 (57.1%) were female, while 45 (42.9%) were male. This composition indicates that the study encompassed a relatively balanced gender perspective. In terms of educational level, the majority of respondents were junior high school students (64.8%), while 37 (35.2%) were from senior high schools. Junior high school students are generally in grades 7 and 8, aged 12-14, while senior high school students are in grades 10-12, aged 15-18. This variation in levels and ages allows the study to capture differences in academic and social development that could potentially influence students' sportsmanship. During the questionnaire, respondents were informed of the study's purpose and assured of the confidentiality and anonymity of the data collected.

Overall, the respondents had diverse characteristics in terms of age, gender, educational level, and school location. This allowed for a representative and comprehensive analysis of the relationship



between teacher teaching skills and student sportsmanship, without compromising the principles of ethics, safety, and respondent comfort.

### ***Design and procedure***

This study employed a correlational design to determine whether a relationship exists between teachers' teaching skills and students' sportsmanship levels in physical education lessons, and if so, to assess the strength of this relationship. This design was chosen because the research focused on analyzing naturally occurring relationships between variables, rather than assessing cause-and-effect relationships (Johnson & Christensen, 2014). In the context of this study, there are two main variables. First, the independent variable (X) is teachers' teaching skills, which encompass various aspects such as teachers' ability to plan lessons, deliver material effectively, guide students during the learning process, and assess learning outcomes comprehensively. Second, the dependent variable (Y) is students' sportsmanship, which encompasses students' sportsmanlike behavior during physical education activities. This aspect encompasses students' ability to respect rules, treat opponents with respect, and demonstrate fair play and social responsibility.

The research procedure was carried out through several systematic stages. The first stage was problem analysis, in which the researcher identified and formulated a research problem related to teachers' teaching skills and students' sportsmanship. The second stage was determining the population and sample, which included junior high and high school students from several schools in Aceh Province and West Java Province. The third stage involves selecting the instrument, specifically choosing and preparing a valid and reliable questionnaire to measure teachers' teaching skills and students' attitudes towards sportsmanship. The fourth stage involves collecting data on teachers' teaching skills and students' sportsmanship using Google. The fifth stage is data processing and analysis. Quantitative data are analyzed descriptively and using Spearman correlation statistics to determine the existence, direction, and strength of the relationship between teacher teaching skills and student sportsmanship. Next, the results of the analysis are interpreted to provide an empirical picture of the influence of teaching skills on student sportsmanship behavior.

### ***Instrument***

#### **Teacher Teaching Skill Instrument**

The assessment of participants' teaching performance was conducted using a teaching performance instrument developed by Maksum (2012). This instrument has demonstrated an adequate level of validity with item-total correlation coefficients ranging from 0.456 to 0.897, as well as very high reliability ( $\alpha = 0.971$ ) as confirmed through testing by Lumba et al. (2021). In this study, participants' teaching performance was categorized into three main aspects: introduction (opening the lesson), core (organizing the lesson), and closure (closing the lesson), each measured using a 5-point Likert scale, ranging from "Disagree" (1) to "Strongly agree" (5). The introduction aspect (items 1-3) assesses the teacher's ability to clearly convey learning objectives to students. The core aspect (items 4-15) includes managing learning tasks according to students' abilities, implementing strategies to optimize student practice, strengthening nonverbal communication, and the teacher's ability to ask questions that stimulate students' reasoning. Meanwhile, the closing aspect (items 16-19) emphasizes providing feedback to students and implementing cooling activities as a closing activity for learning.

#### **Student Sportsmanship Scale in Physical Education (S3-PE)**

To measure students' sportsmanship attitudes, we adopted the 19-item Student Sportsmanship Scale in Physical Education (S3-PE) developed by Razali et al. (2026) from the concept and five indicators promoted by Vallerand et al. (1997), providing respondents with a five-point Likert scale (strongly agree-disagree) to respond to each item. First, commitment, which refers to the attitude and intention to continue participating in sports responsibly, demonstrating dedication to training and competition consistently despite facing difficulties. The commitment indicator consists of four items, including: "I regularly attend physical education and sports lessons, even when they are difficult." Second, social conventions refer to respecting social norms and ethics in sports, such as greeting others, being polite, and maintaining etiquette when competing or interacting with other players. The social conventions indicator consists of four items, including: "I greet and respect teammates and opponents before games or competitions."



Third, rules and officials refer to the adherence to the rules of the game and respecting the decisions of referees or match officials, even if those decisions may not always be favorable. There are three items in the rules and officials indicator, including: "I believe that rules are made to maintain fairness in games and sports." Fourth, opponent, which refers to respecting opponents as competitive partners, treating them with respect, and refraining from actions that are harmful or insulting. There are four items in the opponent indicator, including: "I do not mock or belittle my opponents, even if I win." Finally, a negative approach refers to unsportsmanlike attitudes or behaviors, such as avoiding matches, behaving rudely, cheating, or showing hostility, which undermine the spirit of fair play. There are four items in the negative approach indicator: "I cheat in games or competitions to win."

Specifically for the negative approach indicator, the researchers used reverse scoring, where respondents who disagreed were given a score of 5 (instead of 1). This differs from the other four positive indicators, where those who disagreed received a score of 1, and those who strongly agreed received a score of 5.

### **Data analysis**

Before conducting the Spearman correlation analysis, a descriptive analysis was performed to characterize the data on teachers' teaching skills and students' sportsmanship in physical education lessons. The descriptive analysis aimed to obtain a general overview of the data, including the mean and standard deviation.

Further, a Spearman correlation analysis was used to determine the relationship between teachers' teaching skills and students' sportsmanship. This technique was chosen because the data were not normally distributed. Spearman correlation measures the direction and strength of the relationship based on the data's rank, with a coefficient ( $\rho$ ) ranging from -1 to +1. Positive values indicate a unidirectional relationship, while negative values indicate a counter-intuitive relationship. The criteria for correlation strength are as follows: (1) 0.00-0.10 (negligible), (2) 0.10-0.39 (weak), (3) 0.40-0.69 (moderate), (4) 0.70-0.89 (strong), (5) 0.90-1.00 (very strong) (Blegur et al., 2025; Dancey & Reidy, 2020; Razali et al., 2025; Schober et al., 2018). The decision-making criteria are a significance value (sig.)  $<0.05$ , indicating a significant relationship, while sig.  $\geq 0.05$  indicates no significant relationship.

## **Results**

Physical education aims to develop students' character and physical skills, one of which is sportsmanship. Teachers' teaching skills play a crucial role in shaping students' sportsmanship. This study aims to investigate the relationship between teachers' teaching skills and students' sportsmanship in physical education.

Through descriptive analysis, this study describes the level of teachers' teaching skills and students' sportsmanship. Furthermore, a Spearman correlation test was used to examine the relationship between the two variables. The results are expected to provide insight into how teachers' teaching skills can influence students' sportsmanship and offer a basis for developing more effective teaching methods.

### **Descriptive analysis**

Descriptive analysis was conducted to describe the level of physical education teachers' teaching skills, categorized by gender and educational level. Teachers' teaching skills encompass three main aspects: opening the lesson, organizing the lesson, and closing the lesson, as well as a total teaching skills score. Data are presented as mean (M) and standard deviation (SD).

#### **Teachers' Teaching Skill**

Male students ( $n = 45$ ) and female students ( $n = 60$ ) both gave high mean ratings for teacher teaching skills. Male students scored slightly higher on opening the lesson ( $4.53 \pm 0.53$ ), organizing the lesson ( $4.30 \pm 0.68$ ), and closing the lesson ( $4.29 \pm 0.65$ ) than female students, who scored 4.47 (SD = 0.66), 4.20 (SD = 0.77), and 4.19 (SD = 0.69), respectively. Overall, males' total teaching skill score ( $4.34 \pm 0.66$ ) was marginally higher than females' ( $4.24 \pm 0.74$ ), showing small gender differences (see Table 1).



Junior high school students ( $n = 68$ ) consistently rated teacher teaching skills higher than high school students ( $n = 37$ ). Juniors scored highest in opening the lesson ( $4.59 \pm 0.54$ ), managing the lesson ( $4.28 \pm 0.74$ ), and closing the lesson ( $4.28 \pm 0.69$ ). Seniors scored 4.32 (0.69), 4.18 (SD = 0.72), and 4.16 (SD = 0.64), respectively. Total scores followed this pattern, with juniors at  $4.33 \pm 0.71$  and seniors at  $4.19 \pm 0.70$  (see Table 1).

In general, all mean scores for teachers' teaching skills were in the high category, indicating that physical education teachers, both male and female, at both educational levels, possessed good teaching skills. The relatively small mean differences between gender groups indicate that teachers' teaching skills did not show significant differences based on gender. In contrast, mean differences based on educational level tended to be more consistent, with junior high school teachers demonstrating slightly higher teaching skills than high school teachers, although the differences were not significant. These findings suggest that the context of educational level can influence physical education teachers' teaching skills and practices, particularly in aspects related to opening and managing learning.

Table 1. Description of teacher teaching skills data

No	Teacher teaching skill	Data description (M $\pm$ SD)			
		Gender		Education level	
		Male (n = 45)	Female (n = 60)	Junior high school (n = 68)	Senior high school (n = 37)
1	Opening the lesson	4.53 $\pm$ 0.53	4.47 $\pm$ 0.66	4.59 $\pm$ 0.54	4.32 $\pm$ 0.69
2	Organizing the lesson	4.30 $\pm$ 0.68	4.20 $\pm$ 0.77	4.28 $\pm$ 0.74	4.18 $\pm$ 0.72
3	Closing the lesson	4.29 $\pm$ 0.65	4.19 $\pm$ 0.69	4.28 $\pm$ 0.69	4.16 $\pm$ 0.64
4	Total	4.34 $\pm$ 0.66	4.24 $\pm$ 0.74	4.33 $\pm$ 0.71	4.19 $\pm$ 0.70

## Student Sportsmanship

Based on gender differences, both male ( $n = 45$ ) and female ( $n = 60$ ) students demonstrated high levels of sportsmanship across nearly all indicators. Male students tended to have slightly higher average scores on commitment ( $4.38 \pm 0.65$ ) and rules and officials ( $4.43 \pm 0.59$ ), while differences were relatively small for social conventions and opponents. Conversely, for the negative approach indicator, female students showed a lower average score ( $3.18 \pm 1.28$ ) than male students ( $3.72 \pm 1.51$ ), indicating a lower tendency for negative behavior among female students (see Table 2).

In terms of educational level, junior high school students ( $n = 68$ ) generally had slightly higher average sportsmanship than high school students ( $n = 37$ ) across most indicators. The mean scores for commitment, social conventions, and rules and officials were relatively comparable, while the opponent indicator showed a tendency for junior high school students ( $4.46 \pm 0.62$ ) to respect opponents more strongly than high school students ( $4.23 \pm 0.69$ ). For the negative approach indicator, the mean for junior high school students ( $4.08 \pm 1.34$ ) was slightly higher than that for high school students ( $3.81 \pm 1.49$ ), although considerable variation was observed in responses between students. The total sportsmanship score showed a slightly higher mean for junior high school students ( $4.33 \pm 0.88$ ) than high school students ( $4.20 \pm 0.90$ ) (see Table 2).

Table 2. Description of student sportsmanship data

No	Student sportsmanship	Data description (M $\pm$ SD)			
		Gender		Educational level	
		Male (n = 45)	Female (n = 60)	Junior high school (n = 68)	Senior high school (n = 37)
1	Commitment	4.38 $\pm$ 0.65	4.23 $\pm$ 0.72	4.31 $\pm$ 0.72	4.27 $\pm$ 0.65
2	Social conventions	4.43 $\pm$ 0.65	4.42 $\pm$ 0.65	4.45 $\pm$ 0.69	4.37 $\pm$ 0.59
3	Rules and officials	4.43 $\pm$ 0.59	4.30 $\pm$ 0.74	4.36 $\pm$ 0.74	4.35 $\pm$ 0.57
4	Opponent	4.38 $\pm$ 0.65	4.38 $\pm$ 0.66	4.46 $\pm$ 0.62	4.23 $\pm$ 0.69
5	Negative approach	3.72 $\pm$ 1.51	3.18 $\pm$ 1.28	4.08 $\pm$ 1.34	3.81 $\pm$ 1.49
6	Total	4.26 $\pm$ 0.94	4.30 $\pm$ 0.85	4.33 $\pm$ 0.88	4.20 $\pm$ 0.90

Overall, the descriptive results indicate that students' sportsmanship levels are in the high category, particularly in terms of commitment, social conventions, rules, and officials, as well as opponent indicators. The negative approach indicator showed a lower mean and greater variation, indicating that



negative attitudes still vary among students. Differences based on gender and education level were relatively insignificant, although junior high school students tended to have slightly higher sportsmanship. These findings confirm the role of physical education learning in instilling the value of sportsmanship, while indicating the need for specific strategies to reduce negative attitudes during learning activities and competitions.

### ***Spearman correlation***

Data normality testing is the initial stage in statistical analysis, which aims to determine whether research data is normally distributed. Data normality is a crucial basis for determining the advanced statistical analysis techniques to be used, particularly whether parametric or nonparametric analysis will be employed. In this study, data normality testing was conducted using the Kolmogorov–Smirnov test with the Lilliefors correction, as the study sample size exceeded 50 respondents ( $n > 50$ ). This test was used to examine the distribution of data for each research variable and its corresponding indicators. The decision-making criteria for the normality test were: if the significance value (sig.) is  $>0.05$ , the data are considered normally distributed; if the sig. value is  $\leq 0.05$ , the data are considered non-normally distributed.

Based on the results of the normality test for the teacher's teaching skills variable, the results varied for each indicator. The indicator for opening learning showed a significance value  $<0.001$ , indicating the data were not normally distributed. The indicator for organizing learning had a significance value of 0.200, which is greater than 0.05, thus concluding that the data for this indicator are normally distributed. Furthermore, the closing learning indicator showed a significance value of  $<0.001$ , indicating that the data were not normally distributed. The total score for teachers' teaching skills had a significance value of 0.097 ( $>0.05$ ), indicating that the total data for teachers' teaching skills were normally distributed (see Table 3).

For the student sportsmanship variable, all indicators showed significance values below 0.05. The commitment, social conventions, rules and officials, opponent, and negative approach indicators each had significance values  $<0.001$ , indicating that the data for all these indicators were not normally distributed. Furthermore, the total student sportsmanship score also showed a significance value of 0.034, which is still below the 0.05 threshold, thus indicating that the total student sportsmanship data was also not normally distributed (see Table 3).

Overall, the results of the normality test indicate that most indicators, particularly the student sportsmanship variable, were not normally distributed, although several indicators and the total score for the teacher teaching skills variable met the assumption of normality. Therefore, the assumption of normality in the data in this study was not met across the board.

Table 3. Data normality testing

No	Variable	Indicator	Kolmogorov-Smirnov <sup>a</sup>		
			Statistic	df	Sig.
1	Teacher teaching skill	Opening the lesson	0.177	105	$<0.001$
		Organizing the lesson	0.073	105	0.200*
		Closing the lesson	0.135	105	$<0.001$
		Total	0.080	105	0.097
		Commitment	0.137	105	$<0.001$
2	Students' sportsmanship	Social conventions	0.159	105	$<0.001$
		Rules and officials	0.180	105	$<0.001$
		Opponent	0.169	105	$<0.001$
		Negative approach	0.238	105	$<0.001$
		Total	0.090	105	0.034

\*. This is a lower bound of the true significance.

a. Lilliefors significance correction

Based on the research results, correlation analysis using the Spearman rank test was chosen because it does not require a normal distribution and is more robust against deviations from the normality assumption. This analysis was conducted to assess the relationship between teachers' teaching skills, consisting of three indicators (opening the lesson, organizing the lesson, and closing the lesson), and students' sportsmanship, as measured by five indicators (commitment, social conventions, rules and



officials, opponents, and negative approach). The results are presented as correlation coefficients and significance levels at the 99% confidence level ( $p < 0.01$ ).

The results indicate that each aspect of teachers' teaching skills has a positive and significant relationship with most indicators of student sportsmanship, except for the negative approach indicator, which tended to be low and insignificant. Opening the lesson skills correlated moderately with commitment ( $\rho = 0.492$ ), social conventions ( $\rho = 0.497$ ), rules and officials ( $\rho = 0.532$ ), and opponents ( $\rho = 0.444$ ), as well as total sportsmanship ( $\rho = 0.388$ ). The ability to organize learning showed a stronger correlation, with  $\rho = 0.603$  for commitment and  $\rho = 0.545$  for total student sportsmanship. Meanwhile, closing skills also correlated positively and significantly with key indicators, as shown by  $\rho = 0.566$  for commitment and  $\rho = 0.521$  for total sportsmanship (see Table 4).

Overall, teachers' total teaching skills showed a positive and significant relationship with most indicators of student sportsmanship, including commitment ( $\rho = 0.627$ ) and adherence to social conventions ( $\rho = 0.610$ ), as well as overall sportsmanship ( $\rho = 0.569$ ). These findings confirm that teachers' teaching skills play a crucial role in shaping students' sportsmanship, particularly in fostering commitment, adherence to rules, and mutual respect in social interactions and competitions. However, controlling negative student attitudes appears to be influenced by factors other than teaching skills, requiring additional approaches beyond purely pedagogical aspects.

Table 4. Spearman correlation analysis between teacher teaching skills and student sportsmanship

No	Teacher teaching skill	Students' sportsmanship					Total
		Commitment	Social conventions	Rules and officials	Opponent	Negative approach	
1	Opening the lesson	0.492**	0.497**	0.532**	0.444**	0.090	0.388**
2	Organizing the lesson	0.603**	0.550**	0.521**	0.531**	0.183	0.545**
3	Closing the lesson	0.566**	0.597**	0.534**	0.573**	0.164	0.521**
	Total	0.627**	0.610**	0.573**	0.581**	0.186	0.569**

\*\* Correlation is significant at the 0.01 level (2-tailed).

## Discussion

This study aims to investigate the relationship between physical education teachers' teaching skills and student sportsmanship. Based on the results of the Spearman correlation analysis (see Table 4), it was found that teachers' teaching skills exhibited a positive and statistically significant relationship with students' overall sportsmanship across most indicators. This finding supports the notion that physical education teachers play a role not only as instructors of motor skills but also as agents of character development, particularly in fostering sportsmanship values within the school environment. Overall, the results indicate that the three components of teachers' teaching skills, opening lessons, organizing lessons, and closing lessons, have a significant correlation with the dimensions of student sportsmanship: commitment, social conventions, rules and officials, and opponents. The highest correlations were found for organizational learning skills ( $\rho = 0.545$ ) and total teaching skills ( $\rho = 0.569$ ), indicating that teachers' ability to manage the learning process systematically and fairly significantly influences students' internalization of sportsmanship values.

This finding is consistent with the perspectives of Giray (2021) and Tiryaki (2023), who emphasized that schools play a strategic role in instilling sportsmanship values through physical education instruction. In this context, teachers' teaching skills are a key instrument for transforming the moral and ethical values of sports into concrete learning experiences for students in the school environment. Teachers who can open lessons clearly and meaningfully, organize activities fairly, and close lessons with reflective discussions on values will be more effective in shaping students' sportsmanship. The significant correlation between opening skills and the commitment dimension ( $\rho = 0.492$ ) indicates that the initial stage of learning plays a crucial role in building students' seriousness, responsibility, and commitment to participating in physical education activities. Opening lessons that include explanations of the goals, rules, and values to be achieved can help students recognize that learning sports is not solely about winning, but also about developing honesty, disciplined, and responsible. This is line with Cosma et al. (2021), who stated that sportsmanship develops when students understand the purpose of learning as a process of self-development, rather than simply the outcome of competition.



The social conventions, rules, and official dimensions exhibited a strong correlation with opening and organizing skills. These findings corroborate previous research that has successfully demonstrated the impact of structured, values-based learning models, such as the sports education model (Burgueño & Medina-Casaubón, 2020; Méndez-Giménez et al., 2015) and TPSR (Sanchez et al., 2021), in increasing respect for rules and social conventions in sports. Teachers skilled in organizing learning tend to enforce rules consistently, provide equal opportunities for all students, and create a fair learning climate. This helps students understand the importance of respecting referees, rules, and social norms in the game. The significant correlation between closing skills and the opponent dimension ( $\rho = 0.573$ ) indicates that reflection and affirmation of values at the end of learning play a crucial role in fostering respect for opponents. In the closing phase, teachers have the opportunity to encourage students to reflect on their playing experiences, appreciate the efforts of their teammates and opponents, and instill a healthy understanding of victory and defeat. These findings are consistent with the study by Courel-Ibáñez et al. (2019), which stated that students with high sportsmanship demonstrated greater social responsibility and were able to control aggressive behavior in competitions.

However, the results of this study also showed that the negative approach dimension had a relatively low and statistically insignificant correlation with most teachers' teaching skills. This suggests that, while teachers' teaching skills contribute to enhancing the positive aspects of sportsmanship, reducing negative behaviors such as aggression, excessive protesting, or dishonesty may be influenced by factors other than teachers' teaching skills. This finding aligns with the research of Bolter et al. (2018), which revealed a discrepancy between teachers/coaches and students' perceptions regarding the teaching of sportsmanship. Teachers may feel they are providing role models and moral messages, but students do not always fully grasp or internalize them. This phenomenon is further reinforced by various reports of the continued prevalence of unsportsmanlike behavior among students and athletes, both in school settings and in sports competitions (Okpalaeke & Ekah, 2024; Pelegrín-Muñoz et al., 2013). These facts suggest that sportsmanship is a multifaceted construct influenced by various factors, including intrinsic goals (such as increased self-esteem and task mastery) (Ryska, 2003) and the family environment (Eröz et al., 2024). Therefore, while teachers' teaching skills are crucial, they are not the sole determinant of students' sportsmanship behavior.

Sportsmanship is influenced not only by the fulfillment of basic psychological needs but also by goal orientation, particularly task orientation (Cosma et al., 2021; Ryska, 2003). Teachers with high teaching skills tend to prioritize sportsmanship (as part of learning outcomes) and create a learning environment that supports student autonomy, competence, and connectedness, enabling them to experience sportsmanship in a structured and integrated manner, from the orientation phase to competitions and awards, or through an integrated learning model (Blegur Model) (Blegur, Ma'mun, Berliana, Mahendra, Alif, et al., 2024). This environment encourages students to focus on the learning process, cooperation, and self-development, thus making sportsmanship values more easily internalized. Furthermore, student involvement in sports activities outside of class hours also contributes to the development of sportsmanship. Research by Anggraeni et al. (2025) revealed that vocational high school students who participated in extracurricular basketball activities exhibited higher levels of sportsmanship and prosocial behavior compared to students who did not participate in such activities. These findings suggest that teachers' teaching skills in physical education classes should be supported by consistent and ongoing sports experiences outside the classroom to enhance sportsmanship values. The results of this study also reinforce the view that sportsmanship is not only related to adherence to rules but also to the ability to respect opponents, act fair, and demonstrate honestly in competitive situations (Cosma et al., 2021; Tel, 2014).

Skilled physical education teachers are able to integrate sportsmanship values into various learning instructional models, such as Teaching Personal and Social Responsibility (TPSR), by providing clear instructions, constructive feedback, and modeling fairness and respect for all students (Blegur et al., 2023; Blegur, Ma'mun, Berliana, Mahendra, Bakhri, et al., 2024; Sanchez et al., 2021). Nevertheless, the findings of Bolter et al. (2018) remind teachers of the importance of being reflective about their teaching practices. Effective teaching skills must be complemented by ongoing evaluation and feedback from students to ensure that sportsmanship messages are truly understood and internalized. Without reflection and two-way communication, sportsmanship values have the potential to become mere normative discourse without any real impact on student behavior. Ultimately, the overall results of this study provide an important contribution to the physical education literature by demonstrating a



significant relationship between teachers' teaching skills and students' sportsmanship. These findings complement previous research that has underscored the importance of learning models, social environments, and sports activities, highlighting the importance of teachers' pedagogical skills as a key factor in shaping students' sportsmanship. Therefore, enhancing the quality of physical education teachers' teaching skills should be a central focus in efforts to foster sustainable student sportsmanship in schools.

Although this study demonstrates a positive relationship between physical education teachers' teaching skills and student sportsmanship, several limitations should be acknowledged. First, the correlational design of the study prevents causal inferences regarding the effect of teachers' teaching skills on students' sportsmanship behaviors. Accordingly, future research is encouraged to employ experimental or quasi-experimental designs to examine the causal influence of teacher pedagogical skills on the internalization of sportsmanship value. Second, the negative approach indicator exhibited a weak and non-significant correlation, suggesting that students' negative behavior may be influenced by factors beyond teachers' skills, such as goal orientation, learning motivation, family support, and peer influence. Therefore, further studies should incorporate potential mediating or moderating variables to capture more complex relationships mechanism. Third, this study relied primarily on quantitative measures of teachers' skills and students' sportsmanship and did not explore students' perceptions in depth; as a result, the extent to which sportsmanship values were fully internalized remain unclear. Future research could adopt qualitative or mixed-methods approaches to gain a more comprehensive understanding of the process. Finally, limitations related to the school context and educational level highlight the need for broader sampling and the integration of teacher skills with value-based learning models to enhance the generalizability of the findings and support the sustainability of sportsmanship implementation.

## Conclusions

This study concludes that physical education teachers' teaching skills have a positive and significant relationship with student sportsmanship. All aspects of teachers' teaching skills—opening, organizing, and closing lessons—were significantly correlated with most dimensions of student sportsmanship, including commitment, social conventions, rules and officials, and opponents. These findings indicate that the quality of the physical education learning process plays a crucial role in shaping students' sportsmanlike attitudes and behaviors. Teachers' overall learning organization and teaching skills demonstrated the highest correlation with student sportsmanship, indicating that fair, structured, and consistent classroom management strongly supports the internalization of sportsmanship values. Teachers who can manage learning effectively can create a learning climate conducive to instilling the values of honesty, responsibility, and respect for others. However, the negative approach dimension showed a weak and insignificant relationship with teachers' teaching skills, indicating that negative unsportsmanlike behavior is influenced by factors other than teachers' pedagogical skills. Overall, the results of this study highlight the strategic role of physical education teachers as character educators, rather than simply instructors of sports skills.

The study's important theoretical, practical, and pedagogical implications are as follows. Theoretically, these findings enrich the study of physical education by highlighting teachers' instruction of skills as a key pedagogical factor in shaping student sportsmanship, complementing previous research that emphasized the roles of learning models and the social environment. Sportsmanship is understood as the result of the interaction between pedagogical processes and meaningful learning contexts. Practically, physical education teachers need to intentionally integrate sportsmanship values into every stage of learning, from the opening to the closing. Fair classroom management, providing clear instructions, and reflecting on values at the end of the lesson are important strategies for fostering sportsmanship in students. Schools also need to support teacher professional development through pedagogical training that emphasizes character education and sportsmanship. For policymakers, these findings can serve as a basis for strengthening the physical education curriculum, which is oriented not only toward motor skills but also toward character development. Thus, physical education can function optimally as a vehicle for educating students about values and morals.



Based on the findings of this study, several recommendations for future research can be proposed. First, future research is recommended to employ an experimental or quasi-experimental design to investigate the causal relationship between teachers' teaching skills and student sportsmanship. This approach is crucial for strengthening empirical evidence on the effectiveness of pedagogical practices in character formation. Second, further research should include mediator or moderator variables, such as goal orientation, learning motivation, classroom climate, family support, and peer influence, to explain the more complex relationship between teachers' teaching skills and student sportsmanship, particularly in the negative approach dimension. Third, expanding the research context to include different educational levels and school characteristics is highly recommended to increase the generalizability of the findings. Fourth, a qualitative or mixed methods approach can be used to more deeply explore students' perceptions regarding teachers' sportsmanship teaching practices and the gap in perceptions between teachers and students. Finally, future research can examine the integration of teachers' teaching skills with a values-based learning model to sustainably improve student sportsmanship.

## Acknowledgements

We would like to thank the Education Endowment Fund (LPDP), Center for Higher Education Funding and Assessment (PPAPT), and Indonesian Education Scholarship (BPI) for sponsoring the publication of this research.

## References

- Abakay, U., & Buğdaycı, S. (2018). Examining the physical education lesson sportsmanship behaviors of secondary school students: Konya province example. *The Online Journal of Recreation and Sport*, 7(4), 34–44. <https://doi.org/10.22282/ojrs.2018.41>
- Alfarid, H. (2021). The role of coaches in shaping the character of futsal extracurricular children at SD Muhammadiyah 1 Menganti. *Journal of English Language and Education*, 10(5), 526–532. <https://doi.org/10.31004/jele.v10i5.1302>
- Anggraeni, N. R., Sucipto, A., & Rochsun. (2025). Resilience, prosocial behavior, and sportsmanship of vocational school students: Basketball extracurricular participants vs. non-participants. *International Journal of Multidisciplinary Research and Analysis*, 8(5), 2893–2898. <https://doi.org/10.47191/ijmra/v8-i05-71>
- Barney, D. (2021). Can sportsmanship translate into a person's everyday life? A college students' perspective. *Journal of Kinesiology & Wellness*, 10(1), 65–72. <https://doi.org/10.56980/jkw.v10i.93>
- Blegur, J., Lumba, A. J. F., & Ngongo, M. (2023). Tracing physical education teachers' teaching difficulties in online era using teaching skill indicators. *Pegem Journal of Education and Instruction*, 13(1), 125–134. <https://doi.org/10.47750/pegegog.13.01.15>
- Blegur, J., Ma'mun, A., Berliana, Mahendra, A., Alif, M. N., Juliantine, T., & Lumba, A. J. F. (2024). Integrated learning models for micro-teaching course. *Emerging Science Journal*, 8(6), 2480–2500. <https://doi.org/10.28991/ESJ-2024-08-06-020>
- Blegur, J., Ma'mun, A., Berliana, Mahendra, A., Bakhri, R. S., & Calunsag, B. D. (2024). Enhancing teaching competence of prospective physical education teachers with integrated learning model. *Cakrawala Pendidikan: Jurnal Ilmiah Pendidikan*, 43(3), 588–608. <https://doi.org/10.21831/cp.v43i3.57858>
- Blegur, J., Mutmainnah, Marleni, Sardin, & Syamsijulianto, T. (2025). Students proactive decision-making scale (SPDMS-18). *Emerging Science Journal*, 9(3), 1388–1402. <https://doi.org/10.28991/ESJ-2025-09-03-014>
- Bolter, N. D., Kipp, L., & Johnson, T. (2018). Teaching sportsmanship in physical education and youth sport: Comparing perceptions of teachers with students and coaches with athletes. *Journal of Teaching in Physical Education*, 37(2), 209–217. <https://doi.org/10.1123/jtpe.2017-0038>
- Burgueño, R., & Medina-Casabón, J. (2020). Sport education and sportsmanship orientations: An intervention in high school students. *International Journal of Environmental Research and Public Health*, 17(3), 837. <https://doi.org/10.3390/ijerph17030837>



- Cosma, G.-A., Chiracu, A., Stepan, A.-R., Gatzel, R., Iancu, A., & Cosma, A. (2021). Sportsmanship and basic psychological needs in sports students. *Baltic Journal of Health and Physical Activity*, 13(Special Issue 1), 53–65. <https://doi.org/10.29359/BJHPA.13.Spec.Iss1.05>
- Courel-Ibáñez, J., Sánchez-Alcaraz, B. J., Gómez-Mármol, A., Valero-Valenzuela, A., & Moreno-Murcia, J. A. (2019). The moderating role of sportsmanship and violent attitudes on social and personal responsibility in adolescents. A clustering-classification approach. *PLOS ONE*, 14(2), e0211933. <https://doi.org/10.1371/journal.pone.0211933>
- Dancey, C., & Reidy, J. (2020). *Statistics without maths for psychology* (8th ed.). Pearson.
- Eröz, M. F., Kılıç, T., & Özcan, S. (2024). Sportsmanship behaviors in early adolescence and gender and family attitudes. *Turkish Journal of Sport and Exercise*, 26(1), 69–75. <https://doi.org/10.15314/tсед.1407297>
- Fernandes, R., & Gopal, R. (2024). Physical education curriculum design for promoting lifelong fitness and health literacy. *Innovations in Sports Science*, 1(1), 18–21. <https://doi.org/10.36676/iss.v1.i1.05>
- Giray, L. G. (2021). The spirit of sport: Exploring sportsmanship among physical education students. *Acitya: Journal of Teaching and Education*, 3(2), 257–266. <https://doi.org/10.30650/ajte.v3i2.2232>
- Görgüt, İ., & Tutkun, E. (2023). Sportsmanship in sport with athlete perspective. *Journal of ROL Sports Sciences*, 4(4), 1319–1340. <https://doi.org/10.5281/zenodo.10354049>
- Hardiansyah, S., & Blegur, J. (2024). Physical education teacher skills in preparing HOTS lesson plans and their contribution to teaching performance. *Edu Sportivo: Indonesian Journal of Physical Education*, 5(2), 160–172. [https://doi.org/10.25299/es:ijope.2024.vol5\(2\).17042](https://doi.org/10.25299/es:ijope.2024.vol5(2).17042)
- Hardman, K. (2008). The situation of physical education in schools: A European perspective. *Human Movement*, 9(1), 5–18. <https://doi.org/10.2478/v10038-008-0001-z>
- Johnson, R. B., & Christensen, L. (2014). *Educational research: Quantitative, qualitative, and mixed approaches* (5th ed.). SAGE Publications, Inc.
- Karakaş, F., & Çelik, Z. (2023). The investigation of sportsmanship behavior of students in physical education and sports class according to some variables. *International Journal of Eurasian Education and Culture*, 8(23), 2191–2198. <https://doi.org/10.35826/ijoecc.792>
- Koc, Y. (2017). Relationships between the physical education course sportsmanship behaviors with tendency to violence and empathetic ability (note 1). *Journal of Education and Learning*, 6(3), 169–180. <https://doi.org/10.5539/jel.v6n3p169>
- Koc, Y., & Esenturk, O. K. (2018). Opinions of physical education teachers on the concept of sportsmanship. *Journal of Education and Learning*, 7(1), 71–79. <https://doi.org/10.5539/jel.v7n1p71>
- Ludwiczak, M., & Bronikowska, M. (2022). Fair play in a context of physical education and sports behaviours. *International Journal of Environmental Research and Public Health*, 19(4), 2452. <https://doi.org/10.3390/ijerph19042452>
- Lumba, A. J. F., Blegur, J., & Bayu, W. I. (2021). Teaching performance instruments of physical education teachers. *Journal of Educational Research and Evaluation*, 5(3), 436–442. <https://doi.org/10.23887/jere.v5i3.33893>
- Maksum, A. (2012). *Metodologi penelitian dalam olahraga*. Unesa University Press.
- Ma'mun, A., Tinaz, C., Anira, Syarifatunnisa, S., Hertem, Ö. O., Mahendra, A., & Juliantine, T. (2025). Physical education and school sport in emerging nations: A comparison of Indonesia and Türkiye. *Frontiers in Sports and Active Living*, 7, 1582778. <https://doi.org/10.3389/fspor.2025.1582778>
- Méndez-Giménez, A., Fernández-Río, J., & Méndez-Alonso, D. (2015). Sport education model versus traditional model: Effects on motivation and sportsmanship. *Revista Internacional de Medicina y Ciencias de La Actividad Física y Del Deporte*, 15(59), 449–466. <https://doi.org/10.15366/rimcafd2015.59.004>
- Okpalaeke, P. C., & Ekah, J. A. (2024). 'Unsportsmanlike behaviour': Okigwe Football League and inter-community rivalries in Southeastern Nigeria, 1949–1951. *The International Journal of the History of Sport*, 41(14), 1570–1590. <https://doi.org/10.1080/09523367.2025.2455582>
- Paramida, C., Carsiwan, Hidayat, T., Subroto, T., Sucipto, & Ma'mun, A. (2023). Sportsmanship analysis of winning in sports. *Journal of Physical Education for Secondary Schools*, 3(1), 183–190. <https://doi.org/10.17509/jpess.v3i1.82595>



- Pelegrín-Muñoz, A., Serpa, S., & Rosado, A. (2013). Conductas agresivas y antideportivas en deporte de competición: Análisis de variables personales y ambientales relacionadas. *Anales de Psicología*, 29(3), 701–713. <https://doi.org/10.6018/analesps.29.3.175841>
- Pennington, C. G. (2017). Moral development and sportsmanship in interscholastic sports and physical education. *Journal of Physical Education, Recreation & Dance*, 88(9), 36–42. <https://doi.org/10.1080/07303084.2017.1367745>
- Razali, Bahrum, Syamsulrizal, Tetikay, R., Maimun, & Akbari, M. (2026). Development of student sportsmanship scale in physical education (S3-PE). *Retos*, 74, 500–514. <https://doi.org/10.47197/retos.v74.117720>
- Razali, Blegur, J., Akbari, M., Yuliana, Kurniawan, A. R., & Kamza, M. (2025). Correlating physical literacy with life skills: A study on high school students. *Retos*, 67, 498–508. <https://doi.org/10.47197/retos.v67.112>
- Ryska, T. A. (2003). Sportsmanship in young athletes: The role of competitiveness, motivational orientation, and perceived purposes of sport. *The Journal of Psychology*, 137(3), 273–293. <https://doi.org/10.1080/00223980309600614>
- Sanchez, R. D., Hanrahan, T., & Concannon, J. (2021). Promoting sportsmanship awareness: An application of teaching a personal and social responsibility model in middle school physical education. *Journal of Physical Education and Sport Management*, 12(1), 19–33. <https://doi.org/10.5897/JPESM2021.0360>
- Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation coefficients: Appropriate use and interpretation. *Anesthesia & Analgesia*, 126(5), 1763–1768. <https://doi.org/10.1213/ANE.0000000000002864>
- Tel, M. (2014). Türk toplu yaşantısında fair play. *International Journal of Science Culture and Sport*, 2(5), 694–694. <https://doi.org/10.14486/IJSCS139>
- Temel, A., Mamak, H., Kangalgil, M., Kılıçer, İ., Erdem, C., Çapar, T., Özkan, A., & Uz, S. (2024). Investigation of the sense of school belonging and sportspersonship behavior of students playing traditional children's games. *BMC Psychology*, 12(1), 656. <https://doi.org/10.1186/s40359-024-02155-0>
- Tiryaki, K. (2023). Examination of sportsmanship behaviours of physical education and sports course on students. *Mediterranean Journal of Sport Science*, 6(4), 1119–1132. <https://doi.org/10.38021asbid.1301828>
- Vallerand, R. J., Brière, N. M., Blanchard, C., & Provencher, P. (1997). Development and validation of the multidimensional sportspersonship orientations scale. *Journal of Sport and Exercise Psychology*, 19(2), 197–206. <https://doi.org/10.1123/jsep.19.2.197>

### Authors' and translators' details:

Yulinar	yulinar.por@upi.edu	Author
Amung Ma'mun	amung@upi.edu	Author
Yunyun Yudiana	yunyunyudiana@upi.edu	Author
Nuryadi	nuryadi_71@upi.edu	Author
Ani Kurniawati	anikurniawati@uniga.ac.id	Author
Razali	razali.ismail@usk.ac.id	Author
Amiruddin	amiruddin_ulka@usk.ac.id	Author
Syahrianursaifi	syahrianursaifi_penjaskesrek@abulyatama.ac.id	Author