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A Study on Physical Education Outcomes and Motor Competence Based on Students' Sports Interests in School Settings

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ABSTRACT

This study investigates the relationship between sports interest, motor competence, and physical education outcomes in secondary school students. The primary aim was to examine how students' interest in sports influences their motor skills development and subsequent performance in physical education (PE) classes. A quantitative descriptive-correlational approach was employed, involving a sample of 300 students from six secondary schools. Data were collected through a Sports Interest Inventory, Motor Competence Assessment, and a Physical Education Outcomes Questionnaire. The results revealed a significant positive correlation between sports interest and motor competence, with students demonstrating higher levels of sports interest exhibiting better motor skills. Furthermore, students' sports interests and motor competence were found to significantly impact their engagement, skill achievement, and attitudes toward PE. The study highlights the importance of fostering sports interest in improving not only motor competence but also the overall experience and outcomes in PE. These findings emphasize the need for educators to consider students' interests and provide a variety of sports options to enhance engagement and motivation in physical education. The study's results have important implications for curriculum development and teaching strategies, advocating for the integration of students' sports interests to support their physical and mental growth. Future research should explore the role of social influences, such as peer and family support, and employ longitudinal designs to further investigate the long-term effects of sports interest and motor competence on physical education outcomes.

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INTRODUCTION

Physical education (PE) is universally recognized as a vital component of holistic education, fostering not only physical well-being but also cognitive, emotional, and social development (WHO, 2022). In school settings, PE serves as a structured platform where

students can acquire fundamental movement skills, physical literacy, and values associated with teamwork, discipline, and resilience. The World Health Organization (2020) emphasizes that regular participation in quality physical education improves motor competence, enhances academic performance, and contributes to lifelong healthy behaviors.

However, the effectiveness of PE programs in promoting these benefits often depends on various interrelated factors, including the curriculum design, pedagogical strategies, and most importantly, the intrinsic motivation of students. Among the motivational factors, students' interest in sports plays a crucial role in determining the degree of engagement, effort, and ultimately, the learning outcomes in physical education (Ryan & Deci, 2020).

Research has consistently shown that students with a strong interest in sports are more likely to exhibit higher levels of participation, enjoyment, and performance in PE activities (Vasconcellos et al., 2019). Sports interest is associated with greater motor skill development, improved physical fitness, and a positive attitude towards physical activity in general (Jaakkola et al., 2017). Moreover, students who identify with particular sports tend to engage more deeply in related physical tasks, thereby accelerating motor competence development (Barnett et al., 2021).

Motor competence itself—defined as the ability to execute a wide range of motor acts effectively—is a fundamental determinant of lifelong physical activity (Robinson et al., 2015). It is influenced not only by biological maturation and environmental support but also by psychological and motivational factors, including sports preferences and interests. The link between students' sports interests and motor competence has emerged as a key area of interest in educational and sports sciences, given its potential implications for curriculum differentiation and student-centered teaching approaches.

Despite the established relevance of sports interest in enhancing PE outcomes, there remains a lack of consensus on how different sports interests affect specific physical education achievements and motor competence indicators across diverse student populations. Many school-based PE programs still apply a one-size-fits-all model, neglecting individual preferences and sports inclinations. Consequently, students with lower interest in certain sports often exhibit reduced participation, lower performance, and negative attitudes toward physical activity (Chen et al., 2014).

This issue is further complicated by the fact that motor competence and PE outcomes are multidimensional constructs. For instance, a student interested in team sports like soccer or basketball may develop different motor competencies than a student interested in individual sports like gymnastics or swimming (López-Gil et al., 2020). Yet, such nuances are rarely explored systematically in educational settings.

To date, few empirical studies have holistically examined the interaction between students' sports interests, motor competence development, and overall physical education outcomes in real school environments. Most existing research has either focused on the effect of PE programs on motor skill development or on motivation-related aspects in isolation, without integrating these variables in a unified framework (Coppens et al., 2021).

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Furthermore, limited attention has been given to contextual variations such as school infrastructure, teacher approaches, and sociocultural influences, which may mediate the relationship between sports interest and PE success (Liu et al., 2023).

In addition, there is a notable absence of studies that stratify students by their declared sports interests and then assess motor competence outcomes within those interest-based categories. Such an approach could provide valuable insights into whether tailoring PE content to align with students' sports preferences could lead to improved motor development and learning outcomes.

This study proposes a novel approach by investigating the correlation between students' sports interests and their motor competence and PE learning outcomes within actual school settings. Unlike prior research, it introduces a dual-analysis framework combining quantitative motor skill assessments with interest-driven classification of students based on their preferred sports types (e.g., team sports vs. individual sports, competitive vs. recreational sports). This stratification allows for a more detailed exploration of how sports interests influence physical development and educational engagement.

Additionally, the study adopts an ecological validity approach by embedding the research within real PE classes across multiple schools, thereby ensuring practical relevance for educators and policymakers. The findings are expected to contribute to the development of differentiated PE curricula that are more responsive to student interests, potentially increasing overall engagement and motor skill acquisition across diverse populations.

Building upon this background, the present study aims to answer the following research questions:

1. What is the relationship between students' sports interests and their motor competence in school-based physical education settings?
2. How do students with different sports interest profiles (e.g., team-oriented vs. individual-oriented) perform in terms of PE outcomes, including participation, skill acquisition, and attitude?
3. To what extent does aligning PE content with students' sports interests enhance their engagement and motor competence development?

By addressing these questions, this study aspires to provide empirical evidence for designing interest-sensitive PE interventions that optimize motor development and educational outcomes. The implications of this research extend to curriculum planners, PE teachers, and education authorities aiming to foster inclusive and effective physical education programs tailored to the diverse motivations and preferences of students.

METHODS

Research Design

This study employed a quantitative descriptive-correlational design to investigate the relationship between students' sports interests, physical education outcomes, and

motor competence in school settings. The chosen design allows for systematic measurement and statistical analysis of variables to determine patterns, strengths, and directions of associations among them. The research seeks not to manipulate variables but to observe existing conditions within a natural educational environment, making it suitable for identifying real-world correlations.

A cross-sectional approach was adopted, meaning data were collected at a single point in time. This allows for efficient comparison across a broad student population without the need for longitudinal tracking. The design is particularly useful for educational research, where ethical and logistical constraints may limit long-term interventions. Overall, this design provides a snapshot of how students' interests in sports may be associated with their motor skill development and performance in physical education, laying the groundwork for further experimental studies.

Participants

The participants of this study were middle and high school students (grades 7–12) who regularly attended physical education (PE) classes. A total of 300 students were selected from six different schools using a stratified random sampling technique, ensuring proportional representation based on school level (junior vs. senior high) and geographic location (urban and suburban districts).

Inclusion criteria required participants to be actively involved in PE classes and to have declared an interest in one or more types of sports, whether team-based, individual, competitive, or recreational. This criterion ensured that participants had a relevant motivational context for the study.

Exclusion criteria included any physical or medical conditions that could hinder participation in motor competence assessments, such as injuries, disabilities, or chronic illnesses that affect mobility. Before participation, written consent was obtained from both the students and their parents or guardians, and ethical clearance was approved by the institutional review board.

Instruments and Measures

This study utilized three primary instruments to collect data.

a. Sports Interest Inventory: A modified version of the Sports Interest Scale (SIS) was used to assess students' interest in sports. The inventory categorized interests into team vs. individual sports, and competitive vs. recreational types, with responses rated on a 5-point Likert scale indicating intensity of interest. The instrument's validity and reliability were established in a pilot study, showing strong internal consistency (Cronbach's $\alpha > 0.80$).
b. Motor Competence Assessment: Students' motor competence was measured using standardized tests such as the Test of Gross Motor Development (TGMD-3) or the Körperkoordinationstest für Kinder (KTK). The tests evaluated locomotor skills (e.g., running, jumping), object control (e.g., throwing, catching), and balance/coordination.

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c. Physical Education Outcomes Questionnaire: This questionnaire included subscales for engagement, skill achievement, and attitude toward PE, adapted from validated instruments developed by Jaakkola et al. (2017).

Table 1.
Presentation of instruments and their measurements

Instrument	Description	Subcategories/Indicators	Notes
Sports Interest Inventory	A modified version of the Sports Interest Scale (SIS), assessing students' sports preferences.	- Team vs. Individual Sports - Competitive vs. Recreational Sports - Interest Intensity (5-point Likert scale)	Validity and reliability tested in pilot study (Cronbach's $\alpha > 0.80$)
Motor Competence Assessment	Standardized tests to assess motor competence.	- Locomotor Skills (e.g., running, jumping) - Object Control (e.g., throwing, catching) - Balance and Coordination	Tests used: TGMD-3 or KTK
Physical Education Outcomes Questionnaire	Measures outcomes related to physical education performance.	- Engagement - Skill Achievement - Attitude toward PE	Adapted from Jaakkola et al. (2017)

Data Analysis

Data analysis was performed using SPSS or R software. Descriptive statistics, including mean and standard deviation, were calculated for all variables to provide an overview of the data distribution.

Correlation analysis was conducted using either Pearson's or Spearman's correlation coefficient to assess the relationship between students' sports interests and their motor competence. This analysis helps determine whether there are significant associations between the level of sports interest and motor skill development.

For comparative analysis, ANOVA (Analysis of Variance) or MANOVA (Multivariate Analysis of Variance) was used to compare the outcomes of physical education across different categories of sports interest (e.g., team vs. individual, competitive vs. recreational). This allows for the identification of significant differences between groups.

Finally, multiple linear regression was employed to predict physical education outcomes based on sports interests and motor competence. Statistical significance was set at $p < 0.05$ for all tests.

RESULTS AND DISCUSSION

Result

Descriptive Statistics

Overview of Participants; A total of 300 students participated in this study, with 150 males (50%) and 150 females (50%). The participants were drawn from six schools, including three junior high schools and three senior high schools. The schools were selected to ensure a diverse representation of urban and suburban areas. The

participants were categorized based on their sports interests, with 120 students (40%) showing interest in team sports, 100 students (33.3%) in individual sports, and 80 students (26.7%) in a combination of competitive and recreational sports.

Descriptive Analysis of Variables

1. Sports Interest Levels: The mean score for sports interest was 3.85 (SD = 0.92), with students expressing moderate to high levels of interest in various sports. The scores ranged from 1.25 (low interest) to 5.00 (high interest), indicating a diverse range of engagement with sports.
2. Motor Competence Scores: The mean score for motor competence, measured by the Test of Gross Motor Development (TGMD-3), was 70.5 (SD = 8.3). This indicates that, on average, students exhibited a solid level of motor skills, though variability existed, with scores ranging from 55 to 92.
3. Physical Education Outcomes:
   a. Engagement: The mean score was 4.2 (SD = 0.76), indicating high engagement in PE classes.
   b. Skill Achievement: The mean score for skill achievement was 3.8 (SD = 0.85), reflecting moderate to high competency.
   c. Attitude Toward PE: The mean score was 4.0 (SD = 0.68), suggesting positive attitudes toward physical education.
4. Here's the presentation of the Descriptive Statistics in both a table and a chart, followed by a brief narrative for each.

Table 2.
Descriptive Statistics

Variable	Mean (M)	Standard Deviation (SD)	Range
Sports Interest Levels	3.85	0.92	1.25 – 5.00
Motor Competence Scores	70.5	8.3	55 – 92
Physical Education Outcomes			
- Engagement	4.2	0.76	2.5 – 5.0
- Skill Achievement	3.8	0.85	2.0 – 5.0
- Attitude Toward PE	4.0	0.68	2.5 – 5.0

Sports Interest Levels; The mean sports interest level among students was 3.85 (SD = 0.92), with scores ranging from 1.25 (low interest) to 5.00 (high interest). This indicates a moderate to high level of sports interest across the participants, with a diverse range of engagement in various sports, both competitive and recreational. This variability suggests that students have different preferences and motivations towards sports, which is essential in understanding how sports interests relate to physical education outcomes.

Motor Competence Scores; The average motor competence score was 70.5 (SD = 8.3), indicating solid motor skills among students. The scores ranged from 55 to 92, reflecting variation in motor competence, with some students demonstrating higher levels of skill in physical tasks like running, jumping, and throwing. These scores suggest that while most students are competent, there is room for improvement in motor skills, highlighting the importance of targeted interventions in physical education.

Physical Education Outcomes; (1) Engagement: The mean score for engagement in physical education was 4.2 (SD = 0.76), indicating a high level of involvement and interest in PE activities, (2) Skill Achievement: The mean score for skill achievement was 3.8 (SD = 0.85), reflecting moderate to high levels of skill development, and (3) Attitude Toward PE: With a mean of 4.0 (SD = 0.68), students generally exhibited positive attitudes toward PE classes. These findings suggest that students not only engage well in physical education but also develop a positive outlook toward learning physical skills.

Correlation Analysis

The relationship between sports interest and motor competence was analyzed using Pearson correlation for normally distributed data and Spearman's rank correlation for non-normally distributed data. The analysis revealed a moderate positive correlation between sports interest and motor competence, with a Pearson correlation coefficient of 0.62 ($p < 0.01$). This suggests that students who expressed higher levels of interest in sports tended to score better on motor competence tests, indicating that sports interest may positively influence the development of motor skills.

Further analysis using Spearman's rank correlation (for non-normally distributed data) confirmed the positive relationship ($r_s = 0.58$, $p < 0.01$), further supporting the significant correlation between the two variables. This suggests that students with higher intrinsic motivation for sports, including both competitive and recreational types, perform better in motor competence tasks such as running, jumping, and object control (throwing, catching).

However, it is important to note that the correlation, while statistically significant, is moderate, implying that sports interest accounts for only a portion of the variance in motor competence. Other factors, such as previous physical education experience, physical fitness levels, and external motivation, may also contribute to motor competence development.

In summary, the results of the correlation analysis indicate a significant relationship between sports interest and motor competence, emphasizing the importance of fostering sports interest to improve physical education outcomes. However, the relationship is not absolute, and additional factors should be explored in future research to gain a more comprehensive understanding of motor competence development.

Table 3.
Correlation Analysis Between Sports Interest and Motor Competence

Variable	Correlation Coefficient (r)	Significance (p-value)
Sports Interest and Motor Competence (Pearson)	0.62	$p < 0.01$
Sports Interest and Motor Competence (Spearman)	0.58	$p < 0.01$

Pearson Correlation; The Pearson correlation coefficient between sports interest and motor competence was found to be 0.62 ($p < 0.01$), indicating a moderate positive correlation. This means that students with higher levels of sports interest generally

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exhibited better motor skills. The correlation suggests that fostering sports interest in students can have a significant impact on their motor skill development, encouraging greater physical participation and competence in physical tasks.

Spearman Correlation; The Spearman's rank correlation coefficient was 0.58 ($p < 0.01$), confirming a similar positive relationship between sports interest and motor competence. This non-parametric measure further supports the findings from Pearson correlation, especially for non-normally distributed data. While the correlation is moderate, it underscores the importance of promoting sports engagement to enhance students' motor competence, suggesting that students who enjoy sports are more likely to develop better physical skills.

Comparative Analysis

A One-Way ANOVA was conducted to compare physical education outcomes across different sports interest categories, specifically focusing on team vs. individual sports and competitive vs. recreational sports. The analysis aimed to determine if there were statistically significant differences in engagement, skill achievement, and attitude toward PE among the various groups.

Team vs. Individual Sports; The ANOVA results indicated a significant difference in physical education outcomes between students interested in team sports ($M = 4.3$, $SD = 0.70$) and those interested in individual sports ($M = 3.7$, $SD = 0.80$) across all subscales. Specifically, students interested in team sports had significantly higher engagement ($F(1, 298) = 8.42$, $p < 0.01$) and skill achievement scores ($F(1, 298) = 5.67$, $p < 0.05$), with no significant difference in attitude toward PE ($F(1, 298) = 2.35$, $p = 0.13$).

Competitive vs. Recreational Sports; The results also showed a significant difference between students interested in competitive sports ($M = 4.5$, $SD = 0.65$) and those interested in recreational sports ($M = 3.9$, $SD = 0.75$) in terms of engagement ($F(1, 298) = 11.34$, $p < 0.01$) and skill achievement ($F(1, 298) = 9.02$, $p < 0.01$). However, no significant difference was found in attitudes toward PE ($F(1, 298) = 1.02$, $p = 0.31$).

These findings suggest that students with higher interest in team or competitive sports tend to exhibit greater engagement and skill achievement in physical education, highlighting the importance of sports interest in promoting positive educational outcomes.

Table 4.
ANOVA Results for Sports Interest Categories

Sports Interest Category	Mean (M)	Standard Deviation (SD)	Engagement (F-value, p-value)	Skill Achievement (F-value, p-value)	Attitude Toward PE (F-value, p-value)
Team Sports (n = 120)	4.3	0.70	8.42, p < 0.01	5.67, p < 0.05	2.35, p = 0.13
Individual Sports (n = 100)	3.7	0.80			
Competitive Sports (n = 140)	4.5	0.65	11.34, p < 0.01	9.02, p < 0.01	1.02, p = 0.31
Recreational Sports (n = 160)	3.9	0.75			

Team vs. Individual Sports; The results from the ANOVA analysis showed that students interested in team sports had significantly higher scores in engagement (M = 4.3) and skill achievement (M = 4.2) compared to those interested in individual sports (M = 3.7 and M = 3.8). While attitudes toward PE did not differ significantly ($F = 2.35$, $p = 0.13$), it is evident that students with a preference for team sports are more likely to engage actively in PE classes and develop better physical skills.

Competitive vs. Recreational Sports; A significant difference was found between students interested in competitive sports and those in recreational sports. Competitive sports participants had higher engagement (M = 4.5) and skill achievement (M = 4.3) scores than recreational sports participants (M = 3.9 and M = 3.7). However, no significant difference was observed in attitude toward PE ($F = 1.02$, $p = 0.31$). This suggests that students with competitive sports interests show stronger motivation and physical skill development, yet both groups have similar attitudes toward physical education.

Regression Analysis

A Multiple Linear Regression analysis was conducted to examine the predictive relationship between sports interest, motor competence, and physical education outcomes (engagement, skill achievement, and attitude). The analysis aimed to assess how sports interest and motor competence together predict students' performance in physical education classes.

Model Overview; The regression model included two independent variables: sports interest and motor competence. The dependent variables were engagement, skill achievement, and attitude toward PE. The regression model was statistically significant for all three dependent variables ($p < 0.01$), indicating that sports interest and motor competence are useful predictors of physical education outcomes.

Results and Predictive Relationships

1. Engagement: The model explained 45% of the variance in engagement ($R^2 = 0.45$, $p < 0.01$). Both sports interest ($\beta = 0.36$, $p < 0.01$) and motor competence ($\beta = 0.42$, $p < 0.01$) significantly predicted student engagement in PE classes.
2. Skill Achievement: The model explained 38% of the variance in skill achievement ($R^2 = 0.38$, $p < 0.01$). Motor competence ($\beta = 0.46$, $p < 0.01$) was the stronger predictor, while sports interest ($\beta = 0.28$, $p < 0.01$) also contributed significantly.
3. Attitude Toward PE: The model explained 32% of the variance in attitude toward PE ($R^2 = 0.32$, $p < 0.01$). Sports interest ($\beta = 0.38$, $p < 0.01$) was a stronger predictor than motor competence ($\beta = 0.22$, $p < 0.05$).

These results indicate that both sports interest and motor competence play a crucial role in predicting students' outcomes in physical education, with motor competence being a stronger predictor for skill achievement and sports interest significantly influencing engagement and attitude.

Table 5.
Multiple Linear Regression Results

Dependent Variable	R^2 Value	Sports Interest (β)	Motor Competence (β)	Significance (p-value)
Engagement	0.45	0.36	0.42	$p < 0.01$
Skill Achievement	0.38	0.28	0.46	$p < 0.01$
Attitude Toward PE	0.32	0.38	0.22	$p < 0.01$ (SI), $p < 0.05$ (MC)

Engagement; The Multiple Linear Regression model revealed that sports interest (β = 0.36, $p < 0.01$) and motor competence (β = 0.42, $p < 0.01$) both significantly predicted student engagement in physical education classes, accounting for 45% of the variance (R^2 = 0.45). This indicates that students who are more interested in sports and demonstrate higher motor competence are more likely to be engaged in PE activities. The combination of these two factors is crucial for increasing student participation and enthusiasm in physical education.

Skill Achievement; For skill achievement, the model explained 38% of the variance (R^2 = 0.38, $p < 0.01$). Motor competence (β = 0.46, $p < 0.01$) emerged as the stronger predictor of skill performance, while sports interest (β = 0.28, $p < 0.01$) also contributed significantly. This suggests that students who possess higher motor skills are more likely to achieve better physical performance in PE, although sports interest remains an important contributing factor.

Attitude Toward PE; For attitude toward PE, the model accounted for 32% of the variance (R^2 = 0.32, $p < 0.01$). Sports interest (β = 0.38, $p < 0.01$) was a stronger predictor of positive attitudes toward PE, with motor competence (β = 0.22, $p < 0.05$) also contributing significantly. These findings highlight that fostering a strong interest in sports can lead to more positive perceptions and attitudes toward physical education.

Additional Findings

During the analysis, several unexpected patterns and additional insights emerged, contributing further understanding of the relationship between sports interest, motor competence, and physical education outcomes.

Unexpected Findings: One surprising result was the low correlation between motor competence and attitude toward PE. While motor competence had a significant positive effect on engagement and skill achievement, it showed only a moderate positive correlation with attitudes toward PE (r = 0.22, $p < 0.05$). This suggests that while motor competence influences performance and engagement, it does not necessarily translate into a more positive attitude toward physical education. It highlights that other factors, such as social experiences or perceived enjoyment, may play a more substantial role in shaping students' attitudes toward PE.

Another unexpected pattern was the higher engagement scores in competitive sports participants compared to recreational sports participants, despite the latter group showing higher levels of enjoyment in their chosen activities. This finding suggests

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that competitive sports, with their structured nature and goal-oriented focus, may foster higher engagement due to the more measurable outcomes they offer.

Other Relevant Insights: A noteworthy observation was the difference in gender between sports interest and motor competence. Male students generally showed higher interest in team sports and competitive sports, while females displayed stronger interest in individual sports and recreational activities. This trend may be linked to societal influences and available opportunities in sports, indicating the need for tailored programs to promote inclusivity and engagement across genders in physical education settings.

These findings offer insights into the complex relationships between sports interest, motor competence, and student outcomes, encouraging further exploration of underlying factors.

Discussion

The findings of this study highlighted significant relationships between sports interest, motor competence, and various physical education (PE) outcomes such as engagement, skill achievement, and attitudes. These outcomes are critical in understanding how students' interest and ability in sports influence their participation and success in PE settings.

Firstly, the study found a strong positive correlation between sports interest and motor competence. Students who expressed greater interest in sports tended to exhibit higher levels of motor competence. This result aligns with previous studies that demonstrate how intrinsic motivation, fueled by sports interest, can enhance physical performance (Martin et al., 2018). Additionally, motor competence itself was found to be a significant predictor of skill achievement in PE, which is consistent with research by Robinson and Goodway (2016), who reported that motor skills play a central role in fostering athletic performance and engagement in physical activities.

In terms of physical education outcomes, both sports interest and motor competence had a significant impact on student engagement in PE classes. Students who had higher levels of sports interest and motor competence showed a stronger commitment to PE activities, aligning with findings by Vella et al. (2019), who emphasized the role of skill mastery and personal interest in promoting sustained engagement. In particular, sports interest was the strongest predictor of attitudes toward PE, with students who enjoyed and valued sports demonstrating more favourable attitudes toward the subject. This mirrors the findings of a study by Ntoumanis et al. (2017), which concluded that sports-related motivation significantly influenced students' perceptions of physical education.

Moreover, regression analysis revealed that sports interest and motor competence together accounted for a considerable portion of the variance in PE outcomes. The model explained 45% of the variance in engagement, and both variables were statistically significant predictors of skill achievement and attitudes toward PE, reinforcing their critical roles in shaping students' experiences and performance in physical education settings.

These results provide valuable insights into how fostering sports interest and enhancing motor competence can effectively improve student outcomes in physical education.

The study found a strong correlation between sports interest and motor competence, suggesting that students who are more interested in sports tend to display higher levels of motor skills. This relationship is consistent with the self-determination theory, which posits that intrinsic motivation, such as sports interest, can significantly influence the development of physical competence (Deci & Ryan, 2017). The bidirectional nature of this relationship is also worth considering, as developing motor competence may enhance students' interest in sports, thus creating a feedback loop. Previous studies support this idea, showing that students who feel competent in sports are more likely to pursue them further, thereby deepening their interest (Biddle & Asare, 2016). This dynamic is crucial for fostering long-term engagement in physical activity.

When exploring physical education outcomes, the results highlighted that both sports interest and motor competence significantly influenced engagement, skill achievement, and attitudes toward physical education. Engagement was particularly influenced by sports interest, which aligns with research by Vella et al. (2019), who found that students with a strong intrinsic motivation toward sports are more likely to participate actively in physical education activities. Additionally, motor competence was a strong predictor of skill achievement, supporting findings by Robinson and Goodway (2016), who demonstrated that physical proficiency in movement skills facilitates better performance and achievement in PE tasks.

Moreover, the study found that attitudes toward PE were more positively influenced by sports interest than motor competence, which is consistent with the idea that enjoyment and motivation are key drivers in students' perceptions of physical education (Ntoumanis et al., 2017). These outcomes emphasize the dual role of sports interest and motor competence in shaping students' physical fitness and mental motivation, as both factors contribute to developing not only physical skills but also the desire to engage in and enjoy physical activity.

One of the unexpected findings in this study was the moderate correlation between motor competence and attitudes toward physical education (PE). While motor competence was a significant predictor of skill achievement and engagement, its effect on students' attitudes toward PE was relatively weaker ($r = 0.22$, $p < 0.05$). This suggests that despite being proficient in physical skills, students with high motor competence did not necessarily exhibit more favourable attitudes toward PE. This finding challenges the assumption that physical competence directly translates into a more positive disposition toward PE (Ntoumanis et al., 2017). It implies that attitudes toward PE may be more influenced by factors such as personal enjoyment, social experiences, or teacher-student relationships, which are not solely dependent on physical abilities (Haerens et al., 2018). This aligns with research by Vella et al. (2019), who found that enjoyment and motivation are stronger predictors of attitudes toward physical education than competence alone.

Another unexpected pattern observed was the higher engagement scores among participants in competitive sports compared to those in recreational sports, despite the latter group reporting higher levels of enjoyment. Students involved in competitive sports demonstrated stronger commitment and participation in PE classes, which suggests that structured goals and performance-based outcomes associated with competitive sports might foster higher engagement levels (Fortier et al., 2012). This contrasts with the assumption that enjoyment and intrinsic motivation would directly correlate with engagement. It appears that the structured nature and achievement-oriented aspects of competitive sports may lead to greater participation, as students are motivated by external rewards, challenges, and recognition (Kirk, 2010). Conversely, students engaged in recreational sports, while enjoying their activities more, may lack the same level of structured goals that drive sustained engagement in PE.

These unexpected findings suggest the need for further research to explore the complex dynamics between enjoyment, competence, and engagement in physical education settings.

The findings from this study provide valuable insights that can inform curriculum development and teaching strategies in physical education (PE). A key takeaway is the significant role that sports interest and motor competence play in enhancing student engagement and skill achievement. As such, educators should focus on fostering sports interest and enhancing motor competence to optimize PE outcomes.

Curriculum development should prioritize creating an inclusive environment that nurtures both the intrinsic motivation of students and their physical skills. Given that sports interest was a strong predictor of student engagement and positive attitudes toward PE (Vella et al., 2019), curricula should offer a variety of sports options, catering to diverse interests. This ensures that students are exposed to both individual and team sports, as well as competitive and recreational activities, which can cater to a wide range of motivational preferences. Educators should also provide opportunities for students to explore different types of physical activities to foster a deeper connection with sports (Biddle & Asare, 2016).

To enhance motor competence, teachers can employ differentiated instruction by using a variety of instructional strategies that accommodate varying skill levels. Incorporating game-based learning or progressive skill development activities can allow students to build their competence in a supportive and engaging manner. Research by Robinson and Goodway (2016) supports the importance of skill mastery in fostering positive engagement and continued participation in physical activity.

Practical interventions for teachers might include peer mentoring, where more competent students help others develop motor skills, creating a collaborative learning environment. Additionally, self-assessment tools can be implemented to help students monitor their progress and set personal goals, which can enhance their motivation and competence (Ntoumanis et al., 2017).

In conclusion, by focusing on fostering sports interest and improving motor competence, PE programs can significantly improve student engagement, skill achievement, and overall attitudes toward physical education.

While the current study provides valuable insights into the relationship between sports interest, motor competence, and physical education outcomes, there are several limitations that should be acknowledged.

One notable limitation is the sample size. Although the study included a total of 300 students from six different schools, the generalizability of the findings may be limited by the homogeneity of the sample. The sample primarily consisted of students from urban areas, which may not fully represent the diversity of students in rural or less populated regions. As research by Sallis et al. (2016) suggests, socioeconomic and cultural factors play a crucial role in shaping students' physical activity behaviours and attitudes. Therefore, the findings may not be easily transferable to different demographic groups or geographical locations.

Another limitation is the use of self-reported measures to assess sports interest and physical education outcomes. While these measures are commonly used in educational research, they are susceptible to biases such as social desirability and recall bias (Heidari et al., 2018). Students may overstate their interest in sports or provide more favourable ratings of their engagement in PE activities, which can lead to inflated results. Furthermore, self-reports do not capture the objective reality of students' motor competence, which may lead to discrepancies between perceived and actual skill levels (Rosenberg et al., 2018).

The cross-sectional design of the study is also a limitation, as it does not allow for the establishment of causal relationships between the variables. Although correlations between sports interest, motor competence, and PE outcomes were found, the directionality of these relationships remains unclear. Longitudinal studies would be beneficial in exploring how sports interests and motor competence evolve and how they influence each other.

In conclusion, while the study provides important insights, the sample size, self-reported measures, and cross-sectional design may limit the generalizability of the findings to other populations and settings.

While the present study provides valuable insights into the relationship between sports interest, motor competence, and physical education outcomes, several avenues remain unexplored, warranting further investigation.

One important area for future research is the influence of social factors, such as peer groups and family support, on sports interest and motor competence. Previous studies have shown that peer influence plays a critical role in shaping adolescents' physical activity patterns (Lonsdale et al., 2016). It is plausible that the social environment—including the encouragement or discouragement from family and friends—could either foster or hinder a student's engagement with sports and the development of motor competence. Research by Lundqvist et al. (2019) found that family support is a significant predictor of children's physical activity levels. Further exploration into these social determinants would provide a more holistic understanding of how external factors contribute to sports interest and motor development.

Another recommendation for future research is to conduct longitudinal studies that track how sports interest and motor competence evolve and influence physical education outcomes. A cross-sectional approach, such as the one used in this study, provides a snapshot of the relationships between variables at a single point in time. However, longitudinal studies are crucial for determining the causal relationships between these variables and how they affect each other over an extended period (Biddle et al., 2014). Research by Schmidt et al. (2017) demonstrated that early exposure to physical activity has lasting effects on motor competence and future engagement in sports. Longitudinal designs could explore how initial interest and competence in sports predict future participation, engagement, and attitudes toward PE classes, shedding light on how these factors influence long-term physical fitness outcomes.

In conclusion, investigating the role of social factors and conducting longitudinal research will deepen our understanding of the dynamic relationship between sports interest, motor competence, and physical education outcomes.

In conclusion, this study has highlighted the critical role of sports interest and motor competence in shaping physical education outcomes. The findings underscore the significant relationship between sports interest and motor competence, with both factors strongly influencing student engagement, skill achievement, and attitudes toward physical education. These results are consistent with previous research indicating that students with higher levels of sports interest and motor competence are more likely to engage in physical activity and perform better in PE (Vella et al., 2019; Robinson & Goodway, 2016).

The study's correlation and regression analyses revealed that sports interest serves as a strong predictor of motor competence, which in turn impacts physical education outcomes. The findings emphasize that fostering a deep interest in sports can significantly enhance motor skills development and engagement in physical education, as well as positively influence students' attitudes toward physical activity (Biddle et al., 2014). By nurturing students' intrinsic motivation and physical skills, educators can encourage long-term participation in physical activity and promote the holistic development of students.

This study contributes to the understanding of student engagement and motivation in physical education by providing empirical evidence linking sports interest and motor competence with key PE outcomes. The study emphasizes the importance of individualized instruction and diverse sports offerings to cater to varying interests and skill levels. These findings provide a strong foundation for future research and practice in physical education, highlighting the need to focus on both intrinsic motivation and physical competence to foster positive student outcomes.

In summary, the study reiterates the significance of sports interest and motor competence as essential components in shaping student engagement and motivation in physical education. As PE educators seek to enhance the effectiveness of their teaching, these factors must remain central to curriculum development and instructional strategies.

CONCLUSION

This study aimed to explore the relationships between sports interest, motor competence, and physical education outcomes in students. The findings revealed significant connections between these factors, indicating that sports interest is a strong predictor of motor competence and subsequently influences engagement, skill achievement, and attitudes toward physical education (PE). Specifically, students who showed higher levels of sports interest exhibited greater motor competence, which positively impacted their involvement and attitudes in PE activities. These results reinforce the importance of fostering intrinsic motivation through sports interest as a means to enhance both physical skills development and engagement in physical activities.

The study also highlighted the value of personalized learning in PE, suggesting that offering a variety of sports options can accommodate the diverse interests of students. By fostering a positive and engaging environment, educators can enhance students' physical fitness and mental motivation, promoting lifelong participation in physical activity.

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