

Research on the Relationship between Leadership Skills and Participation in Extracurricular Sports Activities among Junior High School Students in Hainan, China

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Abstract

This research explores the relationship between leadership skills and participation in extracurricular sports activities among junior high school students in Hainan, China. The study aims to investigate how engagement in sports activities outside of the regular curriculum contributes to the development of leadership qualities such as communication, teamwork, decision-making, and problem-solving. A quantitative approach was employed, the surveys with 512 students to gather quantitative data. The findings indicate a significant positive correlation between active involvement in extracurricular sports and the enhancement of leadership skills, with students demonstrating improved confidence, responsibility, and social cohesion. These results suggest that participation in sports plays a critical role in fostering leadership abilities at a formative age, providing valuable insights for educators and policymakers to promote well-rounded student development through extracurricular programs. The study also highlights potential cultural and regional factors unique to Hainan that may influence the dynamics of leadership and sports participation. The research highlights the important role of extracurricular sports in developing leadership skills among junior high school students in Hainan, China. It suggests that schools and policymakers should prioritize sports programs, as they contribute to key leadership traits like teamwork, communication, and problem-solving. These activities not only enhance physical health but also foster personal growth, including confidence and responsibility. The study emphasizes the value of designing sports programs that actively promote leadership development and the importance of considering cultural and regional factors. Additionally, it encourages further research on the long-term impact of sports participation on leadership and its transfer to academic and career success.

Keywords: *Leadership Skills, Extracurricular Sports Activities, Junior High School Students, China.*

Introduction

Talent is a critical strategic resource and the core of organizational competitiveness, driving companies to invest heavily in talent development. In today's globalized world, exceptional leadership and effective management are increasingly vital. Developing students' leadership skills is crucial because its impact extends far beyond the classroom setting. Northouse (2010) defines leadership as a process in which an individual influences a group to achieve a shared goal. This individual, referred to as the leader, is someone who takes on a guiding role within the team. Hallinger (2011) highlights that leadership is not an innate trait but rather a skill that can be developed through effort and training. Adolescence is the optimal and critical period for leadership development. During this stage, teenagers begin to shape their personalities and are eager to explore, embrace new experiences, and acquire new skills (Tackett et al., 2023). Kuhn and Weinberger (2005) conducted a study revealing that high school students with leadership experience tend to earn significantly higher salaries and are more likely to assume leadership roles within organizations. Therefore, developing leadership skills in adolescents, especially among high school students is highly important. However, in recent years, the difficulty of finding employment for Chinese college students has become a social problem (Changjun et al., 2020). One of the important reasons is the mismatch between students' personal qualities and abilities and the talent needs of enterprises (He et al., 2021). The main reason for this problem is China's traditional exam-oriented education. Parents and teachers focus on scores, but neglect the cultivation of other aspects of children, forming a vicious circle of high scores and low abilities, which seriously hinders the development of youth leadership (He et al., 2021). The lack of leadership training for students in schools and families has caused great difficulties for youth social adaptation. The development of social adaptability of adolescents faces special pressure, especially in the inadaptability of

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interpersonal communication (Zhang & Koshmanova, 2021). There are many factors that can influence the development of student leadership, and participation in sports activities is one of the important factors. Zhang and Koshmanova (2021) indicated that adolescents who regularly participated in sports showed stronger leadership than those who did not. Gai (2014) argued that a higher level of participation in extracurricular activities, including sports, is more advantageous for the development of leadership skills among college students. Pierce et al. (2020) believed sports can help students develop leadership skills. Sports can have an important impact on the development of self-discipline, such as the ability to plan, work with others, monitor, and adjust behavior to achieve goals.

Leadership skills encompass a range of abilities that enable individuals to guide, influence, and manage teams effectively. A key component is teamwork, where leaders foster collaboration, empathy, and support among their team members. They know how to delegate tasks based on individual strengths and are skilled in resolving conflicts constructively. Equally important is self-understanding, which involves emotional intelligence, self-awareness, and the ability to reflect on personal strengths and weaknesses. Leaders who understand themselves can manage their emotions, recognize areas for growth, and lead by example. Strong communication skills are vital in leadership, ensuring that goals, expectations, and feedback are conveyed clearly and effectively. This includes not only speaking but also active listening and understanding non-verbal cues, which help leaders build trust and respect. Finally, decision-making is a critical leadership component, requiring critical thinking, decisiveness, and ethical judgment. Leaders analyze situations carefully, make informed and timely decisions, and adapt when new information arises. All these skills are interconnected, as effective decision-making relies on strong communication, self-awareness, and teamwork. Leaders who master these areas are better equipped to inspire, motivate, and achieve long-term success for their teams or organizations.

Despite the recognized importance of leadership development in adolescence, there is a lack of research focusing on the role of extracurricular sports in fostering leadership skills among junior high school students in Hainan, China. As the province continues to develop economically and socially, schools are increasingly encouraged to enhance students' holistic development, yet there is little empirical evidence to guide educators on the potential benefits of sports participation in nurturing leadership qualities. This study aims to address this gap by investigating the relationship between participation in extracurricular sports activities and the development of leadership skills among junior high school students in Hainan. Understanding this relationship will provide valuable insights for educators, policymakers, and community leaders to design effective extracurricular programs that promote leadership among adolescents in this region.

While previous studies have demonstrated that there is a relationship between sport activity participation and student leadership, there is a lack of empirical research to validate this connection. Additionally, most existing studies focus on leadership development among college students (age between 18-22), with limited attention given to youth leadership (age between 12-18). Research on the relationship between leadership skills and participation in extracurricular sports activities among junior high school students in Hainan, China, has several important implications for educators and policymakers. It highlights that sports participation often plays a crucial role in developing leadership skills such as teamwork, communication, decision-making, and self-awareness. Students involved in sports may have more opportunities to take on leadership roles, fostering responsibility and strategic thinking. Additionally, sports activities enhance social and emotional development by helping students improve teamwork, manage relationships, and regulate emotions—all key leadership traits. This connection between leadership and sports may also extend to academic settings, where students who demonstrate leadership in sports often perform better in group work and take initiative in their studies. Furthermore, the research may explore gender differences in leadership development, indicating the need for schools to provide equitable opportunities for both boys and girls in sports programs. Cultural and regional factors specific to Hainan may also shape the dynamics of leadership development, suggesting that sports programs should be tailored to local contexts. Ultimately, the findings could lead to recommendations for schools to invest more in extracurricular sports, integrating leadership training within these activities. The long-term impact on students' career prospects and life success underscores the importance of sports in shaping future leaders, emphasizing that sports serve not

only as recreation but as a key avenue for personal and leadership development.

Literature Review

Extracurricular physical activities serve as a supplement to physical education classes, a component of school physical education, and a means of education, with continuous advancements in content and form. Different versions of textbooks offer varying definitions of extracurricular physical activities. For instance, the 1991 edition (*Renmin Edition*) of the *School Physical Education* textbook defines extracurricular physical activities as organized physical activities that students participate in outside of physical education classes, both within and beyond the school setting (Aili, 2014). The 2000 edition (*Higher Education Press Edition*) of *School Physical Education* describes extracurricular physical activities as an essential part of school physical education, which, together with physical education classes, constitutes the overall school physical education framework. Extracurricular physical activities include three aspects: extracurricular physical exercise, extracurricular sports training, and extracurricular sports competitions (Jiang & Espeso, 2023). Extracurricular physical activities play a vital role in fostering students' holistic development, encompassing physical, mental, social, and academic growth. Regular participation enhances physical health by improving fitness, reducing the risk of obesity, and promoting lifelong healthy habits (Norris et al., 2020). These activities also benefit mental health by reducing stress, anxiety, and depression (Buckley & Lee, 2021). Participation in sport activities develop critical skills such as teamwork, leadership, and communication, while also facilitating the creation of meaningful relationships with peers and mentors (Oktadinata et al., 2024). Moreover, participation builds essential life skills, including decision-making, adaptability, and responsibility, while nurturing character traits such as perseverance, respect, and ethical behavior, which are fundamental to personal and professional success (Suyato et al., 2024). In terms of the relationship between sport activity participation and student leadership, previous studies have shown that sports participation can significantly predict student leadership (Krumboltz, Christal & Ward, 1959; Dobosz & Beaty, 1999). Students who participate in sports have better leadership than those who do not; participation in sports activities can promote the development of students' leadership (Aili, 2014; Bin, 2015; Minding, 2011), sports participation can enhance individual leadership potential (Lee, 2019; Pierce et al., 2020).

Extracurricular sports activities are positively related to student leadership skills because they provide numerous opportunities for personal growth and skill development (Liu, 2018). In team-based sports, students learn the importance of collaboration, working together to achieve common goals, which enhances their teamwork and communication skills—key aspects of effective leadership. Sports also require students to make quick decisions under pressure, sharpening their problem-solving and decision-making abilities (Hancock, D. et al., 2012). Participation fosters responsibility and accountability, as students must be disciplined and committed to their roles, both as individuals and team members. These experiences build confidence and self-esteem, especially for those in leadership roles such as team captains, enabling them to handle pressure and set a positive example for others. Additionally, sports teach emotional and social intelligence, as students navigate various emotions and learn to understand and manage the feelings of their teammates (Zhang et al., 2019). They also develop conflict resolution skills by handling disputes constructively, further enhancing their leadership capabilities. Collectively, these experiences in sports contribute to the development of well-rounded, competent leaders among students. Extracurricular experiences are an important part of campus life. Identifying and promoting specific leadership learning outcomes helps students understand how an activity can advance their leadership development. These initiatives are a valuable means of integrating intentional leadership outcomes into activities designed to enhance leadership in all students. Based on these previous findings H1 is proposed:

H1: Extracurricular sports activities is positively related to student leadership skills.

Extracurricular sports activities play a crucial role in developing specific teamwork skills among students. Mizrak et al. (2017) noted that sports activities are an effective way to develop teamwork skills, allowing participants to develop both life skills and sport expertise (Danish & Nellen, 1997). Participation in sports can particularly improve leadership and teamwork skills (Holt et al., 2016). Larson (2000) states that teamwork skills are naturally acquired through sports without any direct teaching. Likewise, these skills can

be transferred to other life experiences outside of the sports realm without participants having to undergo any special training for this purpose. First, they teach collaboration by requiring students to work closely with others to achieve a common objective, such as winning a game or improving overall team performance. In this environment, students learn how to align their individual efforts with the team's goals, recognizing that success is a collective achievement rather than an individual one. Additionally, sports emphasize role assignment and acceptance, where each team member is given a specific position with distinct responsibilities. This helps students understand and appreciate the importance of each role within the team, fostering a sense of interdependence. Another key aspect is communication and coordination. In team sports, players must communicate regularly, whether it's calling out plays, providing feedback, or signaling strategies (Cao et al., 2019). This constant interaction enhances their ability to convey messages clearly and coordinate their actions with others in real-time, a vital skill in any teamwork scenario. Moreover, sports promote trust and dependability, as students learn to trust their teammates to perform their roles effectively (Zhu et al., 2020). This trust builds stronger bonds within the team, ensuring everyone works together smoothly and with confidence in each other's abilities. Sports also involve conflict resolution, as disagreements or misunderstandings often arise in high-pressure situations. Students learn to resolve conflicts in a constructive and respectful manner, which is crucial for maintaining team harmony and ensuring that personal differences do not affect group performance. Furthermore, sports emphasize mutual support, where teammates encourage each other through both successes and failures. This builds a sense of camaraderie, helping students realize the importance of positive reinforcement and emotional support within a team. Finally, sports teach adaptability and flexibility. Game situations can change quickly, requiring students to adjust their strategies or compensate for a teammate's absence. This experience helps students become more adaptable, learning how to respond to evolving team needs while maintaining focus on the group's objectives. Collectively, these experiences in extracurricular sports activities help students develop essential teamwork skills, such as collaboration, communication, trust, conflict resolution, and adaptability, all of which are vital for effective team functioning in both academic and future professional environments. Based on these previous findings H2 is proposed:

H2: Extracurricular sports activities is positively related to student teamwork skills.

Extracurricular sports activities specifically enhance students' self-understanding skills by providing direct experiences that prompt personal reflection and growth. First, through regular feedback on their performance, students develop self-awareness, as they observe how their efforts translate into results, whether in terms of physical performance, strategy, or team contribution (Zhuang, 2022). They become more attuned to their strengths and weaknesses, such as speed, agility, or leadership skills, which helps them form a clearer, more accurate self-perception. Additionally, sports expose students to both success and failure, forcing them to confront their emotional responses. After a win, students recognize what contributes to their achievements, while after a loss, they learn to accept their limitations and figure out areas for improvement, fostering resilience and emotional insight. Sports also cultivate an understanding of motivation and commitment, as students are required to push through challenges and maintain consistent effort (Zou et al., 2024). This reveals what drives them internally, helping them identify the personal values or rewards that motivate them to persist. The process of setting goals in sports—whether it's improving a skill or reaching fitness targets—teaches students how to evaluate their abilities realistically, set achievable milestones, and reflect on their progress, deepening their sense of self-awareness and discipline.

Moreover, sports offer numerous opportunities for emotional regulation. When faced with high-pressure situations, like a critical game or intense competition, students learn to manage their emotions—whether it's calming nerves or handling frustration—helping them better understand their emotional triggers and responses (King et al., 2020). This insight is key to understanding how they function under stress and how to regulate emotions effectively. In team sports, students gain valuable social self-understanding by interacting with teammates, learning how their actions affect others, and observing how they are perceived within the group. They develop an understanding of their social role, whether as a leader, supporter, or mediator, which helps shape their sense of identity in collaborative settings. Sports also require students to balance independence and interdependence (Foreman et al., 2013). They learn when to take charge and

assert themselves, and when to rely on teammates for support, helping them understand their preferences for working independently or in group settings. Overall, these specific experiences within extracurricular sports activities give students deeper insights into their own abilities, emotions, motivations, and social roles, enhancing their overall self-understanding. Based on these previous findings H3 is proposed:

H3: Extracurricular sports activities is positively related to student self-understanding skills.

Abakay (2013) describes sports play a very important role in improving communication skills. Ozturk et al. (2015) indicates that sports-related games can interfere with positive communication skills. Akçakoyun et al. (2016) reports that engaging in physical activities in public spaces positively impacts students' communication skills. Consequently, students should be encouraged to participate in physical activities in these public settings. Extracurricular sports activities specifically enhance students' communication skills by immersing them in various real-time, practical communication scenarios. On the field, students must communicate clearly and efficiently to coordinate strategies, call out plays, and provide instructions during high-pressure moments. This sharpens their ability to convey messages quickly and effectively, ensuring that their teammates understand their intentions. Additionally, sports demand strong listening skills, as students must actively listen to coaches and teammates, processing directions accurately and responding accordingly (Rubin et al., 2002). This experience teaches them the value of attentive listening in successful communication. Sports also heavily rely on non-verbal communication. Players frequently use body language, gestures, and eye contact to signal strategies or convey their feelings during the game. This helps students develop an acute awareness of non-verbal cues and how to both interpret and deliver them, which is essential for effective communication in fast-paced environments where verbal exchange is limited (Haber et al., 2009). Conflict is inevitable in sports, whether it's about tactics, roles, or refereeing decisions. In these moments, students must use communication to resolve conflicts and negotiate compromises. They learn how to express their views calmly and listen to others' perspectives, improving their ability to mediate disagreements while maintaining team unity. Additionally, sports emphasize the importance of giving and receiving constructive feedback. Students regularly offer suggestions to help their teammates improve while providing encouragement to build confidence, which enhances their ability to communicate criticism in a positive, motivating manner.

Leadership roles in sports, such as captains, require students to practice directive communication. They must motivate their team, communicate strategies, and make quick decisions under pressure, all of which help develop clear, confident, and motivational communication styles. Moreover, sports teams often consist of individuals with diverse personalities and communication preferences, prompting students to adapt their communication style depending on who they are interacting with (Kuh et al., 2004). This teaches them the flexibility needed to engage with different types of people effectively. Also, sports improve emotional intelligence in communication. Intense emotions like frustration, excitement, or disappointment are common in competitive sports, and students learn to manage these feelings while communicating clearly. They also develop empathy by recognizing their teammates' emotions and responding appropriately, which fosters better team dynamics. Through these specific experiences, students in sports gain the skills to communicate effectively in a variety of situations, enhancing their overall ability to convey, listen, resolve conflicts, and adapt to different communication needs. Based on these previous findings H4 is proposed:

H4: Extracurricular sports activities is positively related to student communication skills.

Extracurricular sports activities are specifically linked to the development of students' decision-making skills by immersing them in high-pressure, dynamic environments that require quick, thoughtful choices. In sports, athletes often face situations that demand immediate decisions, such as deciding whether to pass the ball, shoot, or make a defensive move. These moments help students develop the ability to think quickly and act decisively, even when there isn't much time to analyze every possible outcome. Sports also encourage strategic thinking, where students must constantly assess the strengths and weaknesses of their own team and their opponents, adjusting tactics in real time (Fakhretdinova, G.N. et al., 2021). For instance, a player may need to decide how to adjust their positioning or choose a different play if their initial plan isn't working, helping them learn to make decisions based on constantly changing circumstances.

Moreover, sports teach risk assessment and consequence evaluation. Students often face decisions where they must weigh the potential risks and rewards of their actions—such as whether to attempt a challenging play that could lead to a big win or choose a safer option to maintain control (Agu et al., 2010). These situations help students learn to evaluate the potential consequences of their actions, which is an essential part of decision-making in any context. For those in leadership roles, like team captains, sports require them to make decisions that impact the team's overall strategy and morale. These decisions, such as choosing who takes the lead in a critical moment or how to address team conflicts, require students to consider the needs and dynamics of the entire group, which enhances their ability to make group-oriented decisions.

Additionally, sports provide a strong focus on self-reflection. After each game or practice, students reflect on the decisions they made—whether they were successful or not—and assess what they could have done differently. This encourages continuous improvement in their decision-making process, as they learn from both their successes and mistakes (Yousaf Zada, N. et al., 2021). The unpredictable nature of sports further strengthens decision-making skills, as players must adapt to changing conditions, like an injury or a shift in the opponent's strategy, requiring them to make decisions based on new information in real-time. Finally, the competitive setting of sports teaches students how to make decisions under pressure, maintaining focus and composure in critical moments. Overall, sports provide students with a range of decision-making experiences, helping them improve their ability to make quick, effective, and strategic decisions both on and off the field. Khan et al. (2019) describes sports provide students with an excellent opportunity to learn skills that can help them improve their decision-making abilities. Karakullukçu et al. (2019) expresses students interested in team sports had higher self-confidence than those interested in individual sports. Individual self-confidence positively influenced self-esteem levels at each decision-making moment. Gabbett et al. (2008) indicates professional training can improve athletes' decision-making ability. Based on these previous findings H5 is proposed:

H5: Extracurricular sports activities is positively related to student decision-making skills.

Methodology

Research Approach

A cross-sectional design is suitable for this study, as it allows for the collection of data at one point in time to explore the relationship between extracurricular sports participation and leadership skills. This design is efficient in capturing a snapshot of the variables at the time of data collection. The primary data collection tool would be a structured questionnaire designed to assess both leadership skills and extracurricular sports participation.

Data Collection & Procedure

The target population of this study is junior high school students from Haikou City, Hainan Province. This study adopted a proportional stratified random sampling technique, which ensures that the size of each stratum is proportional to its size in the overall population, which means that each stratum maintains the same sampling proportion (Crossman & Nicki, 2020). Therefore, the sample size is proportional to the total population of the school district, school, and students. This study randomly selected 512 eighth-grade students from 8 sample schools in 4 urban districts of Haikou City to ensure better representativeness and reliability of junior high school students in Haikou City in the sample.

Instrument

In this study, researchers used questionnaires as instruments. The questionnaire used in this study was adapted from the Leadership Skills Inventory (LSI) instrument developed by Carter and Townsend

(Townsend, 1981) and revised in 1983 (Townsend & Carter, 1983) to measure student leadership skills. The instrument also adapted Extracurricular Activity Participation Scale (EAPS) developed by Li Gai and Wang Bin (Gai, 2015). The scale was developed on the basis of Eccles' 3-factor model of extracurricular activity participation of secondary school students, which is suitable for Chinese junior high school students' extracurricular activity participation (Gai, 2015). The questionnaire was divided into three sections: Part A focused on respondent demographics, Part B addressed participation in sports activities, and Part C evaluated student leadership. Section A contained information on the respondents' demographics, including gender, school region and the experience of student as leader. Section B is about the measurement of students' participation in sports activities. The questionnaire on extracurricular activities participation for junior high school students compiled by Li Gai (2015) was selected. It includes 20 questions on campus extracurricular activities, social practice activities, and sports activities. Among them, there are 6 questions on sports activities participation. It uses a five-point scale ranging from 1 to 5 (from hardly to always). The higher the score of the questionnaire on sports activities participation, the higher the participation in sports activities for junior high school students. Through reliability analysis, the internal consistency coefficients of each dimension are between 0.813 and 0.857; the internal consistency coefficient of the total table is 0.901. Section C focused on assessing student leadership skills. The Leadership Skills Inventory (LSI) scale comprised 21 items categorized into five dimensions: (a) teamwork skills, (b) self-understanding, (c) communication skills, (d) decision-making skills, and (e) leadership skills. Participants responded using a five-point Likert scale ranging from 1 (low) to 5 (high). A higher total score on the questionnaire indicated stronger leadership skills. The scale's reliability coefficients ranged from 0.63 to 0.83, demonstrating relatively high internal consistency and overall reliability.

Data Analyses

Descriptive statistics (mean, standard deviation, frequency) will be used to summarize the data and provide an overview of the participants' sports involvement and leadership skills. To examine the strength and direction of the relationship between sports participation and leadership skills, Pearson's correlation or Spearman's rank correlation (depending on the data's normality) could be used. This analysis will help determine if higher levels of sports participation are associated with stronger leadership skills. A multiple regression analysis could be conducted to explore the predictive power of sports participation on leadership skills, while controlling for potential confounding variables such as gender or grade level. This would allow researchers to determine if sports participation significantly predicts leadership skills after controlling for other factors.

Results

Of the 550 questionnaires distributed, only 512 completed surveys were valid the data for this study, the respondent rate thus was 93.09%. According to Table 1, there were 45.1% of male respondents and 54.9% of female respondents. The data shows that out of all the respondents, 85.7% belong to the Cumulative service time group of under 1 year, 8.6% belong to the Cumulative service time group of 1-3 years, 4.1% belong to the Cumulative service time group of 3-5 years, and 1.6% are the Cumulative service time group of more than 5 years. According to their school location, 12.5% were located in Meilan, 27.5% were located in Longhua, 33.2% were located in Qiong shan and 26.8% were located In Xiu ying. Student cadre experience indicates that 27.7% have Student cadre experience, 72.3% have no student cadre experience.

Table 1. Demographic Characteristics of Respondents

Characteristics	Frequency	Percentages (%)
Gender		
Male	231	45.1%
Female	281	54.9%
Student cadre experience		
yes	142	27.7%
no	370	72.3%

Cumulative service time		
Under 1 year	439	85.7%
1-3 year	44	8.6%
3-5 year	21	4.1%
More than 5 year	8	1.6%
School location		
Meilan	64	12.5%
Longhua	141	27.5%
Qiong shan	170	33.2%
Xiu ying	137	26.8%

Assessment of the Measurement Model

According to Nunnally and Bernstein (1994), composite reliability (CR) values between 0.7 and 0.9 are considered excellent, while numbers below 0.6 indicate a lack of internal consistency. The composite reliabilities of all constructs are satisfactory as they are greater than 0.9, which is above the acceptable level. Therefore, they meet the requirements of construct reliability. Teamwork has a composite reliability score of 0.938, followed by self-understanding (0.934), leadership skill (0.928), communication (0.927), extracurricular sports activities (0.918) and decision-making (0.916). (Refer to Table 2).

Table 2. Measurement Model

Factors	Beta	Loadings	CR	AVE
Extracurricular sports activities	0.889		0.918	0.692
ESA1		0.826		
ESA2		0.831		
ESA3		0.833		
ESA4		0.837		
ESA5		0.833		
Leadership skill	0.896		0.928	0.762
LS1		0.884		
LS2		0.864		
LS3		0.875		
LS4		0.868		
Decision making	0.863		0.916	0.785
DM1		0.895		
DM2		0.876		
DM3		0.888		
Self understanding	0.911		0.934	0.738

SU1		0.847		
SU2		0.867		
SU3		0.863		
SU4		0.856		
SU5		0.864		
Teamwork	0.917		0.938	0.751
T1		0.865		
T2		0.880		
T3		0.864		
T4		0.860		
T5		0.866		
Communication	0.895		0.927	0.760
C1		0.878		
C2		0.863		
C3		0.869		
C4		0.878		

Construct reliability and validity analysis: Because they fall between 0.692 and 0.785, the AVE for reflective constructs and attributes demonstrated convergent validity (refer to Table 2). All reflecting constructs and attributes are credible for this research because the AVE values or the four variables are all above the 0.5 threshold. Hair et al. (2016) suggesting that more than half of the variance of the individual indicators were explained by its latent variable.

Discriminant validity: Discriminant validity was assessed using the HTMT criterion proposed by Henseler, et al (1985) and refined by Franke and Sarstedt (1996). According to this criterion, HTMT values should not exceed 0.85 for the stricter criterion and 0.90 for the more lenient criterion. Table 3 displays the HTMT values, all below the stricter threshold of 0.90. Consequently, the test result demonstrated the validity and reliability of the measurement items.

Table 3. Discriminant Validity—HTMT.

	Self-understanding	Sport activity	Teamwork	Communication	Decision making	leadership
Self-understanding	0.859					
Sport activity	0.649	0.832				
Teamwork	0.918	0.639	0.867			
Communication	0.915	0.649	0.897	0.872		
Decision making	0.898	0.634	0.899	0.878	0.886	
Leadership	0.907	0.651	0.907	0.895	0.921	0.873

Assessment of the Structural Model

The second step of PLS-SEM is to assess the significance of the path coefficients (Hair et al., 2014, 2016; Henseler et al., 2009). A bootstrap procedure with 5000 subsamples was used to assess the path coefficients and test the hypothesized relationships (Hair et al., 2011). The results shown in Table 4 provide empirical support for all hypothesized relationships.

Hypothesis 1 posits that Extracurricular sports activities is positively related to student leadership skills.

This hypothesized relationship is fully supported ($\beta=0.651$, $t=15.141$, $p < 0.001$).

Hypothesis 2 pertains to positive relationship between Extracurricular sports activities and teamwork skills.

The values from structural model reveal that there is significant influence of Extracurricular sports activities and teamwork skill ($\beta=0.639$, $t=14.385$, $p < 0.001$). Thus, H2 is supported.

Hypothesis 3, which is about positive relationship between Extracurricular sports activities and self-understanding skills.

The values from structural model reveal that there is significant influence of Extracurricular sports activities and self-understanding skills ($\beta=0.649$, $t=14.472$, $p < 0.001$). Hence, H3 also found empirical support.

Hypothesis 4 pertains to positive relationship between Extracurricular sports activities and communication skills.

The values from structural model reveal that there is significant influence of Extracurricular sports activities and communication skills ($\beta=0.649$, $t=14.757$, $p < 0.001$). Thus, H4 is supported.

Hypothesis 5 proposed that Extracurricular sports activities is positively related to decision making skills.

This hypothesized relationship is fully supported ($\beta=0.634$, $t=14.923$, $p < 0.001$). Thus, H5 is supported. All the relationships are reported in Table 4.

Table 4. Structural Model

Hypotheses	Beta	R ²	Mean	Standard deviation (STDEV)	T statistics	P value
ESA → SU	0.649	0.422	0.650	0.045	14.472	$p < .001$
ESA → T	0.639	0.408	0.640	0.044	14.385	$p < .001$

ESA→C	0.649	0.421	0.650	0.044	14.757	p <.001
ESA→DM	0.634	0.403	0.636	0.043	14.923	p <.001
ESA→LS	0.651	0.424	0.652	0.043	15.141	p <.001

ESA= Extracurricular sports activities; LS= Leadership Skill; DM=Decision making; C=Communication; T=teamwork; SU=self-understanding

Discussion

The findings from this research provide valuable insights into the relationship between participation in extracurricular sports activities and the development of leadership skills among junior high school students in Hainan, China. This study fills a critical gap by examining this relationship within the unique socio-cultural and educational context of a developing region in China, where limited research has been conducted.

The results indicate a positive correlation between students' involvement in extracurricular sports and the development of leadership skills. This supports the existing body of literature, which argues that sports offer a platform for young individuals to cultivate essential leadership traits such as teamwork, responsibility, decision-making, and communication. Sports environments often require students to take on roles that involve cooperation, strategy, and sometimes leadership of peers. As such, sports provide a natural environment where students can practice leading, whether formally as team captains or informally during collaborative play. In Hainan, where educational curricula are traditionally academically focused, this study emphasizes the critical role of physical education and sports in fostering holistic student development. Through sports, students learn to set goals, face challenges, and motivate their peers, all of which are essential leadership skills.

The cultural and educational context of Hainan also plays a crucial role in shaping the findings of this study. In China, education is often seen as the primary vehicle for success, and academic achievement is highly emphasized. Extracurricular sports, while present, may not always be prioritized by students, parents, or schools. However, the findings suggest that sports can play a pivotal role in students' personal development, complementing academic learning with essential life skills like leadership.

The findings from this research carry several important implications for educators, policymakers, and school administrators in Hainan. Firstly, the positive relationship between sports participation and leadership skills development suggests that schools should emphasize and expand their extracurricular sports programs. By offering a wider range of sports activities and encouraging consistent participation, schools can provide students with the platforms necessary to develop critical leadership skills.

Lastly, given the increasing emphasis on holistic education in China, these results support the integration of sports as a key element in educational curricula, particularly in underdeveloped or transitioning regions like Hainan. Policymakers could encourage schools to adopt a more balanced approach that includes not only academic excellence but also the development of leadership and life skills through extracurricular activities.

Implications

Theoretical Implications

The theoretical implications of research on the relationship between leadership skills and participation in extracurricular sports activities among junior high school students in Hainan, China, can contribute to a deeper understanding of how sports involvement impacts leadership development. Specifically, this research has the potential to enhance existing leadership theories and provide new perspectives on the role of extracurricular activities in shaping young people's leadership abilities. Below are some of the key theoretical implications:

This research could contribute to the expansion of transformational leadership theory. In sports, especially team sports, individuals often need to inspire and motivate their teammates, work towards collective goals, and exhibit behaviors that can positively influence the group's performance. By studying how students in Hainan develop leadership skills through sports, the research could offer insights into how leadership behaviors (e.g., motivation, vision, and teamwork) are cultivated in a non-corporate, extracurricular setting. The findings might highlight the relationship between sports participation and transformational leadership behaviors, suggesting that sports could serve as an effective platform for developing these qualities at a young age.

Educational frameworks on leadership development often focus on formal settings such as classrooms or student government. This research could contribute to the theoretical understanding of how leadership development can also occur outside of these formal educational environments, specifically in extracurricular activities like sports. By exploring how sports participation shapes students' leadership abilities, the study could inform educational leaders and policymakers about the importance of incorporating sports into leadership development programs. This would suggest that sports can be a powerful tool in holistic leadership development frameworks, encouraging schools to prioritize extracurricular activities as an avenue for leadership growth.

The research could contribute to adolescent development theories, particularly in understanding how leadership skills emerge during the transition from childhood to adolescence. Sports provide adolescents with a structured yet dynamic environment in which they can take on new responsibilities, interact with peers, and face challenges. This allows researchers to examine how sports participation interacts with developmental milestones in adolescence, helping students develop important leadership skills such as communication, decision-making, and emotional regulation. The study might offer new insights into the role of sports in shaping adolescents' self-concept and identity as leaders.

Practical Implications

The practical implications of research on the relationship between leadership skills and participation in extracurricular sports activities among junior high school students in Hainan, China, are far-reaching, particularly for educators, policymakers, school administrators, and community leaders. The findings could have a significant impact on the way extracurricular activities, especially sports, are structured and integrated into the educational experience of students. Below are some specific practical implications:

The research could encourage schools in Hainan (and potentially in other regions) to expand and strengthen their leadership development programs through extracurricular sports activities. If a positive relationship is found between sports participation and leadership skills, schools might place greater emphasis on fostering leadership roles within sports teams, such as appointing team captains or leadership committees. Schools could also offer specialized training or workshops to enhance the leadership skills of students involved in sports, further supporting the development of these skills alongside athletic abilities.

Schools could integrate leadership training into their sports programs, focusing on how students can use sports as a platform for developing key leadership traits such as communication, teamwork, decision-making, and conflict resolution. Coaches and physical education teachers might receive training on how to

identify leadership potential in students and how to nurture these skills during practices and competitions. This could involve teaching students about effective leadership styles, conflict management strategies, and how to motivate and support peers in both individual and team contexts.

For educators and policymakers, the research could serve as evidence for advocating the promotion of extracurricular sports participation as a valuable tool for leadership development. School districts and local governments could increase funding and resources for sports programs, ensuring that all students have access to sports opportunities regardless of socioeconomic background. This could involve creating more inclusive sports programs, especially for students who may not naturally gravitate towards sports, ensuring that leadership development through sports is accessible to a wide range of students.

Based on the findings, schools could develop more comprehensive methods for evaluating and assessing leadership skills in students, particularly those involved in sports. Traditional academic assessments may not fully capture students' leadership potential. Therefore, schools might implement leadership assessments that consider both academic and extracurricular achievements, such as sports leadership roles, the ability to collaborate with peers, and the capacity to make decisions under pressure. This holistic evaluation could be used for further academic or extracurricular opportunities and college admissions.

Conclusion

Overall, this study demonstrates a clear link between extracurricular sports participation and leadership development among junior high school students in Hainan. The findings highlight the value of integrating sports more fully into educational frameworks, offering students not just physical health benefits but also key leadership opportunities that will serve them in future academic and professional endeavors.

Limitation and Future Direction

One of the main limitations of this research could be its cross-sectional design, which collects data at a single point in time. While this approach can identify relationships between sports participation and leadership skills, it cannot establish causality. A longitudinal design, where students are followed over an extended period, could provide more insight into causal relationships. The study may rely on self-reported surveys to assess leadership skills and sports participation. Self-reporting can introduce response bias, as students may overestimate their leadership qualities or participation in sports to present themselves in a more favorable light. Additionally, students may lack the self-awareness to accurately assess their own leadership skills. To address this, researchers could complement self-reports with peer evaluations, teacher assessments, or objective measures of leadership (e.g., the number of leadership roles held in sports). The research focuses specifically on junior high school students in Hainan, China, which may limit the generalizability of the findings to other regions, cultural contexts, or age groups. Leadership development in extracurricular sports may differ across countries or even between urban and rural areas. Therefore, while the study can provide insights for this specific context, it may not be applicable to students outside of Hainan or to different educational systems. Future studies could replicate the research in other regions of China or in countries with different educational and cultural contexts to enhance the generalizability of the findings.

Future studies could adopt a longitudinal design to track the development of leadership skills over time. This would help establish a clearer cause-and-effect relationship and reveal how leadership skills evolve as students continue their sports involvement. A mixed-methods approach (combining both qualitative and quantitative data) could offer a more comprehensive understanding of the relationship between sports participation and leadership skills. For example, qualitative interviews or focus groups could provide deeper insights into how students perceive their leadership development through sports. Combining qualitative data with quantitative analysis would also help triangulate the findings and offer a richer, more nuanced understanding of the phenomenon. Future research could explore specific leadership competencies in greater detail, such as decision-making, conflict resolution, or emotional intelligence. By focusing on distinct

aspects of leadership, researchers could uncover which competencies are most strongly influenced by sports participation. This would help tailor sports programs to better address particular leadership skills and competencies. As noted, leadership development in sports may vary across cultural contexts. Future studies could explore how the relationship between sports participation and leadership skills differs across countries or regions with different educational systems, cultural values, and sports structures. Cross-cultural studies could provide a broader understanding of the universal and context-specific aspects of leadership development through sports.

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