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"Quantifying the Impact of Football Program Participation on the Holistic Development of Middle School Students: Basis for Training Program Initiatives"

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Abstract: This study examines the effects of a football program on the overall development of middle school students aged 18-19. Using a quantitative approach, the research aims to measure how regular participation in the program influences various aspects of student growth, including physical fitness, emotional well-being, social interaction, and cognitive skills. To assess these outcomes, students underwent evaluations before and after participating in the program, with the data analyzed through statistical tools. The study uses Jamovi software to compare the results and identify any significant changes. The goal is to provide concrete evidence of the positive role sports can play in education, offering insights that could help shape future policies focused on student development through physical activity.

Keywords: Football Program; Student Development; Quantitative Analysis; Physical Fitness; Educational Policy.

1. Introduction

The significance of sports, particularly football, in shaping individuals' physical and mental faculties is a universally acknowledged truth, serving as a cornerstone for holistic development. Football, with its unparalleled global appeal, acts as a unifying force, transcending cultural and geographical divides (Pryor & Austin, 2023). Recognizing the multifaceted benefits of integrating sports into educational frameworks, especially during the transformative middle school years, has become increasingly prevalent. These benefits, far exceeding the realm of physical health, play a crucial role in instilling essential life skills such as teamwork, discipline, and resilience in students (Habyarimana, Tugirumukiza, & Zhou, 2022).

This thesis proposal explores into the intricate dynamics of football development at the middle school level, centering on a case study of the Guangzhou Experimental Foreign Language School (GEFLS) located in South China. GEFLS is renowned for its holistic educational approach, which skillfully melds academic rigor with character building and physical development, thereby setting a standard for comprehensive student growth (Habyarimana et al., 2022).

The researcher, having personally navigated the journey of a middle school football program participant at GEFLS, brings a unique perspective to this study. Their experience underscores the pronounced disparities in physical fitness between students actively engaged in sports programs and their less active peers. Active involvement in football was notably linked to enhanced cardiovascular health, muscle strength, flexibility, and overall better body composition (Smith & Johnson, 2018). This personal journey through football underscores the vital importance of regular and vigorous participation in sports for maintaining optimal physical fitness.

As students transition from adolescence to early adulthood, the incorporation of physical activity into the educational curriculum becomes increasingly critical. The researcher's firsthand experience illustrates how football plays an indispensable role during this pivotal stage, not only in promoting cardiovascular health but also in shaping cognitive and social skills (Brown & Wilson, 2020). Emerging research, paralleling the researcher's observations, suggests positive impacts of physical activity on cognitive functions, including attention, memory, and academic performance, marking an area ripe for further investigation (White & Smith, 2021).

Furthermore, the researcher's involvement in team sports during their middle school years at GEFLS provided practical insights into the development of leadership skills among youth, corroborated by studies from Johnson and Anderson. This empirical evidence supports the notion that sports participation is instrumental in cultivating leadership qualities.

Additionally, the researcher's engagement in football highlighted the comprehensive benefits of youth participation in the sport. Beyond physical fitness, football contributed to discipline, personal growth, and the development of life skills through structured routines and mentorship within the program, as echoed in the research by Brown and Jackson.

The implications of these findings for stakeholders, including educators, policymakers, coaches, and parents, are profound. They emphasize the indispensable role of sports, particularly football, in not only enhancing physical health but also in nurturing key leadership skills and life competencies among youth. With its capacity to teach valuable life lessons and its global appeal, football emerges as a formidable tool for personal and character development among middle school students.

Drawing from extensive research and enriched by the researcher's personal experiences, this thesis aims to explore and substantiate the transformative power of football in fostering disciplined, health-conscious, and socially adept individuals. The role of football in not just promoting physical fitness but also in cultivating crucial life skills and competencies forms the crux of this investigative study.

1.1. Background

As middle school students stand on the brink of adulthood, the role of sports, especially football, in their education takes on a heightened significance. This critical period, marked by rapid physical growth and cognitive development, demands a

curriculum that not only challenges the intellect but also nurtures the body and spirit. Football, often celebrated as "the beautiful game," occupies a unique position in the hearts of millions, offering more than mere entertainment. It serves as a vital educational tool that promotes physical health, cognitive development, and social integration (Zeng, Cuello, Skelly, Gigliello, & Riveras, 2018).

In recent years, the spotlight on China's football scene has intensified, with a growing emphasis on grassroots development and youth engagement (Leite & Rodrigues, 2017). The Guangzhou Experimental Foreign Language School, nestled in the bustling city of Guangzhou, exemplifies this shift towards integrating football into educational paradigms, aiming to mold well-rounded individuals poised for success in all life's arenas (Ying Wa College & Ying Wa Girls' School, 2022).

This study seeks to explore how middle school football programs, particularly for students aged 18-19, can bridge the gap between adolescence and adulthood, offering a platform for significant physical, cognitive, and social development. It aims to shed light on the transformative power of football in shaping disciplined, health-conscious, and socially adept individuals, ready to tackle the challenges of the future.

The exploration of football's role within middle school education has garnered widespread acclaim for its myriad benefits on student development. However, a notable gap persists in our empirical understanding of these programs' effectiveness, particularly in quantifying their comprehensive impact on students' holistic development. This research pursues to bridge this gap through a detailed quantitative analysis of football program participation at Guangzhou Experimental Foreign Language School, aiming to elucidate the multifaceted benefits of such activities on middle school students, aged 18-19, across physical, academic, and character development domains (Zheng et al., 2018; Habyarimana et al., 2022).

Extensive prior research has illuminated significant differences in physical fitness levels between students actively engaged in sports and their less active counterparts, showcasing the positive correlations between sports participation and aspects such as cardiovascular endurance, muscular strength, flexibility, and body composition (Smith & Johnson, 2018). This study intends to expand upon these foundational insights, offering a precise evaluation of the improvements in physical fitness attributable to consistent and intensive participation in football programs during middle school years. Such an analysis is vital for determining the optimal engagement levels required to maximize physical health benefits among students.

The critical role of physical activity in the educational curriculum cannot be understated, particularly in promoting a healthier and more active youth population. This research is poised to contribute significantly to the discourse, advocating for the integration of sports, notably football, within educational settings to enhance the overall well-being of students. Furthermore, the project will investigate football's specific impact on cardiovascular fitness among middle school students, thereby enriching our understanding of its potential long-term health benefits (Brown & Wilson, 2020).

Beyond physical health, this proposal will explore the relationship between football participation and cognitive functions, including attentiveness, memory, and academic performance. Inspired by the study by White & Smith (2021), this research explores into how regular physical exercise through football may influence academic outcomes, offering insights into the potential for sports to enhance cognitive development in a middle school context.

Moreover, the study examines the role of football in fostering leadership skills among youth, drawing upon the research by Johnson and Anderson. By analyzing how team sports like football contribute to leadership qualities, this research will provide empirical data and concrete examples of sports' effectiveness in cultivating essential life skills among middle school students.

The broader implications of this study will be significant for parents, educators, coaches, and youth development organizations. By highlighting the importance of youth participation in team sports for physical, academic, and character development, this research underscores the need to encourage such activities for the holistic development of students.

Building on insights from Brown and Jackson's case study, this study also elucidates how participation in football contributes to discipline, personal development, and the instillation of valuable life skills through structured routines, accountability, goal setting, adaptability, and mentorship.

Summing up, "Quantifying the Impact of Football Program Participation on the Holistic Development of Middle School Students: Basis for Training Program Initiatives" aims to underscore the transformative influence of football in fostering discipline and nurturing well-rounded individuals equipped with essential life skills. This study will not only validate the beneficial impacts of football participation on physical health, cognitive abilities, and character development but also serve as a critical resource for developing future training program initiatives designed to optimize the holistic development of middle school students.

The central aim of this thesis is to conduct a quantitative analysis of the development of middle school students at Guangzhou Experimental Foreign Language School, focusing specifically on their participation in football programs. This investigation is designed to shed light on the multifaceted impact of football on the holistic development of students aged 18-19. To realize this goal, the study pursue several specific objectives, each aimed at uncovering different dimensions of development influenced by football participation:

1.2. Assessment of Physical Fitness Levels:

This research evaluate the physical fitness levels of students actively engaged in football programs in comparison to their peers who do not participate in such activities. Drawing on the work of Strykalenko et al. (2021), the study aims to provide a nuanced understanding of football's potential long-term effects on the physical health of middle school students. It explores whether the disparities in physical fitness, noted in earlier research, persist or evolve as students age and how football contributes to these dynamics over time.

1.3. Examination of Academic Performance:

The study also scrutinize the academic outcomes of students involved in football, seeking to identify any correlations between sports participation and academic success, inspired by the findings of Chuan, Yusof, & Shah (2012). By analyzing academic data longitudinally, the research intends to determine the sustained impact, if any, of football involvement on students' academic performance, offering insights into the role of physical activity in cognitive

and educational development.

1.4. Evaluation of Social and Character Development:

Further, this thesis assesses the social and character development of students through the prism of teamwork, discipline, and leadership skills fostered by football participation, as highlighted by Vaughan, Mallett, Potrac, López-Felip, & Davids (2021). This aspect is focus on understanding how the structured environment of team sports contributes to personal growth and the cultivation of social competencies essential for success beyond the school years.

1.5. Long-term Implications on Physical Fitness:

Building on significant research by Smith & Johnson (2018), which revealed marked differences in physical fitness between students engaged in sports and those who are not, this study investigates the trajectory of these disparities over time. It aims to assess the continuous development of physical fitness among students participating in football, considering the broader implications of integrating physical activity into educational programs to foster a healthier, more active youth population.

1.6. Enduring Effects on Health and Well-being:

Recognizing the pivotal stages of childhood and adolescence in establishing lifelong health habits, the research examines the enduring effects of football in promoting physical activity and cardiovascular fitness, as suggested by Brown & Wilson (2020). It seeks to ascertain whether the benefits of football participation extend into adulthood, potentially influencing health and fitness levels long after students have left the school environment.

Influence on Cognitive Functions: Additionally, the study explores the long-term influence of physical activity on cognitive functions, including attentiveness, memory, and academic performance. This inquiry is motivated by previous research, such as that by White & Smith (2021), and aims to uncover how the cognitive benefits associated with physical activity during school years affect academic and cognitive performance in the future.

1.7. Development of Leadership Skills:

Lastly, this research investigates the development of leadership qualities in youth who participate in team sports, such as football. It provides empirical data to validate the lasting impact of these activities on nurturing leadership skills. The study offers concrete examples of how leadership competencies evolve over time among students actively engaged in sports, highlighting the significant role of athletic participation in fostering these essential qualities.

Finally, the outcomes of this study are anticipated to hold considerable significance for a wide array of stakeholders, including parents, educators, coaches, and youth development organizations. The findings underscore the vital importance of encouraging and supporting youth participation in team sports, not merely for enhancing physical fitness but also for fostering essential leadership qualities and life skills. This research aims to contribute valuable insights into the holistic development of middle school students through sports participation, with a particular emphasis on the transformative role of football.

1.8. Statement of the Problem

This study aims to investigate the extent to which student participation in the middle school football program at Guangzhou Experimental Foreign Language School (GZFLS) will impact with the holistic development of middle school students.

Specifically, this study sought to answer the following questions:

1. What is the profile of the respondents in terms of:
   1.1. Sex
   1.2. Age
2. What are the current physical fitness levels of middle school students who are actively participating in football programs in terms of:
   2.1. cardiovascular endurance
   2.2. muscular strength
   2.3. flexibility
   2.4. body composition
3. What are the holistic development levels of middle school students who are actively participating in football program in terms of;
   3.1 Cognitive
   3.2 Emotional
   3.3 Social
4. Is there a significant difference between the profile, fitness levels and holistic development of the middle school students who are actively participating in football program?
5. Is there a significant relationship between the physical fitness levels and holistic development of the middle school students who are actively participating in football program?
6. What football training program can be proposed based on the future findings of this research?

1.9. Significance of the Study

The significance of this study, "Quantifying the Impact of Football Program Participation on the Holistic Development of Middle School Students: Basis for Training Program Initiatives," extends across several vital domains, offering substantial benefits and insights for a wide array of stakeholders in the educational and developmental fields. By meticulously analyzing the multifaceted effects of football participation on middle school students, this research endeavors to fill a critical gap in the current literature, providing a robust quantitative foundation for the evaluation of sports programs within school curriculums. The significance of this study can be elaborated as follows:

1.10. For Educational Policy Makers and School Administrators

The findings of this study will offer evidence-based insights that can inform policy decisions and curriculum development, emphasizing the integration of sports programs, specifically football, to enhance student development. School administrators could use this data to advocate for or design comprehensive sports programs that not only aim at improving physical fitness but also at enhancing cognitive performance and social skills among students. It could lead to the allocation of more resources towards sports facilities, coaching staff, and program development, ensuring that sports education is recognized as an integral component of holistic student development.

1.11.For Educators and Coaches

Educators and coaches stand to gain invaluable information on the impact of sports participation on various aspects of student development, including academic performance and leadership skills. The study's outcomes could guide teachers and coaches in creating more effective, inclusive, and supportive training programs that cater to the diverse needs of students. Furthermore, it can foster a collaborative environment between academic and sports education, encouraging educators to integrate physical activity into their teaching methodologies to enhance learning outcomes.

1.12.For Parents and Guardians

The research will provide parents with a deeper understanding of the benefits associated with their children's participation in football programs, beyond the obvious physical health advantages. Recognizing the positive correlations between sports involvement and academic success, as well as character development, may encourage more parents to support and advocate for their children's active participation in sports. This could lead to a shift in perceptions about the role of sports in education, seeing it as a valuable investment in their child's overall development.

1.13.For Students

Middle school students, the middle beneficiaries of this study, will gain from enhanced sports programs that are designed based on the findings of this research. Improved programs can lead to better physical, cognitive, and emotional outcomes for students, contributing to their overall well-being and success both in and outside of school. Additionally, understanding the value of their participation in sports can motivate students to engage more actively and take advantage of the opportunities for growth and development that sports offer.

1.14.For Future Research

This study will contribute significantly to the body of knowledge regarding the holistic benefits of sports participation in educational settings. By providing a comprehensive quantitative analysis of football's impact on middle school students, it lays the groundwork for future research in this area. Scholars can build upon these findings to explore other sports, different educational contexts, or longitudinal studies that track the long-term effects of sports participation on student development.

1.15.For Youth Development Organizations

Organizations dedicated to youth development can utilize the insights from this study to design or improve their sports and leadership programs. The evidence of football's positive impact on leadership skills, teamwork, discipline, and personal growth can guide these organizations in creating targeted initiatives that support the holistic development of young individuals.

1.16.Scope and Delimitations of the Study:

The scope and delimitations of the study, titled "Quantifying the Impact of Football Program Participation on the Holistic Development of Middle School Students: Basis for Training Program Initiatives," are meticulously defined to ensure a focused and effective investigation into the multifaceted influence of football programs at Guangzhou Experimental Foreign Language School (GZFLS) on students aged 18-19. This section outlines the parameters within which the research will operate, providing clarity on its targeted demographic, geographical and institutional context, and methodological considerations.

1.17.Target Demographic

This study is specifically designed to assess the impact of football development programs on middle school students in the age bracket of 18-19 years at GZFLS. This age group represents a critical transitional phase from adolescence into early adulthood, characterized by significant physical, social, and cognitive development milestones. The research aims to explore the nuanced ways in which football programs cater to and enhance these advanced developmental stages, offering insights into the alignment of sports participation with the needs and capabilities of older middle school students.

1.18.Geographical and Institutional Context

The investigation is geographically and institutionally confined to GZFLS, a setting that provides a unique context due to its educational philosophy, sports programming, and student demographics. The focus on this particular institution allows for a deep dive into the specific characteristics of its football development programs and their impact on student development. Given the older age group of the students involved, the study acknowledges the need for a tailored approach to data collection and analysis that considers the complex social dynamics, more sophisticated football skills, and a deeper understanding of sports participation inherent to this demographic.

1.19.Methodological Considerations

In light of the specific demographic and contextual focus, the research instruments and methodologies employed in this study are carefully adjusted to suit the unique needs of middle school students aged 18-19. This includes the deployment of more sophisticated measures to assess physical fitness levels, which account for the advanced physical development of the students. Similarly, the evaluation of cognitive development and social skills employed nuanced tools designed to capture the intricate relationships between sports participation and these aspects of holistic development. Assessments were crafted to explore into the leadership and teamwork skills fostered by football participation, alongside investigating the cognitive benefits that extend beyond physical fitness.

This approach ensures that the research methodologies are not only appropriate for the age group but also sensitive to the developmental stages and capabilities of the students involved. By focusing on these tailored assessments, the study aims to provide a comprehensive understanding of how football development programs at GZFLS contribute to the holistic development of middle school students transitioning into adulthood.

In summary, the scope and delimitations of this study are strategically defined to focus on a critical analysis of football program participation among middle school students aged 18-19 at GZFLS. Through a tailored methodological approach that considers the advanced developmental stages of the target demographic, this research endeavors to contribute valuable insights into the effectiveness of sports programs in promoting holistic development, thereby informing future training program initiatives.

1.20.Theoretical Framework:

The study, "Quantifying the Impact of Football Program Participation on the Holistic Development of Middle School Students: Basis for Training Program Initiatives," is poised to explore the dynamic intersection of physical education, cognitive growth, social interaction, and emotional development within the context of youth football programs at Guangzhou Experimental Foreign Language School (GZFLS). This research draws on the foundational theories of Jean Piaget and Erik Erikson to explore the multifaceted development of middle school students, specifically those aged 18-19, as they participate in football programs. By examining this connection, the study aims to provide a deeper understanding of how football participation aligns with and supports the broader developmental pathways of these students.

Jean Piaget's theory of Cognitive Development, traditionally segmented into stages culminating in the formal operational phase typically reached by adolescence, provides a lens through which the cognitive benefits of football participation can be assessed. Given the target demographic's age, these students are navigating the complexities of abstract reasoning, strategic thinking, and hypothesis testing — skills that are not only applicable in academic settings but also in strategizing within a football context. This research analyzes how the strategic and collaborative demands of football can act as catalysts for cognitive development, enhancing problem-solving skills and logical reasoning.

Erik Erikson's theory of Psychosocial Development, particularly focusing on the stages relevant to adolescence and young adulthood, will be used to examine the social and emotional growth facilitated by football participation. This includes navigating the identity versus role confusion stage, where belonging to a football team may provide a sense of identity and community, and the industry versus inferiority stage, where the development of competencies and skills within the sport can foster a sense of achievement and confidence. The study explores how football programs at GZFLS contribute to resolving these psychosocial crises, promoting a healthy sense of self and social integration.

This research also incorporates Lawrence Kohlberg's Stages of Moral Development to examine the moral and ethical growth of students participating in football programs. By using this framework, the study aims to shed light on how involvement in team sports like football shapes students' moral reasoning, from their understanding of fairness and justice to their sense of responsibility toward teammates and adherence to rules. It will explore how the structured environment of football, with its emphasis on fairness, teamwork, and respect, promotes advanced moral reasoning and ethical behavior among middle school students.

This comprehensive theoretical framework guides the investigation into how participation in football impacts the holistic development of students at GZFLS. The study will explore how physical fitness improvements relate to cognitive growth, how team dynamics foster social and emotional development, and how navigating the ethical challenges of competitive sports enhances moral reasoning. By examining the interplay between physical activity and developmental milestones in middle school students, the research aims to provide empirical evidence supporting the integration of football programs into educational curricula to promote holistic student development.

In summary, by aligning the research with the theoretical foundations provided by Piaget, Erikson, and Kohlberg, the study articulates a detailed exploration of the comprehensive benefits of football program participation. It aims to substantiate the role of such programs in fostering not only physical and cognitive development but also in enhancing social, emotional, and moral growth among middle school students at GZFLS. This approach promises to contribute valuable insights into the design and implementation of training programs that support the multifaceted development of young individuals, advocating for a balanced and integrated educational experience that prepares students for the complexities of adulthood.

1.21.Conceptual Framework:

The field of middle school football development is multifaceted, encompassing physical, technical, tactical, and psychological components. To comprehensively investigate this intricate landscape, the researcher presented a conceptual framework that will guide this quantitative analysis, focusing on middle school football development and its potential impact on the physical fitness and character development in GZFLS. This framework serves as the scaffolding of the study, offering a structured approach to unravel the relationships among various factors and measures.

At the core of this conceptual framework are the key elements of middle school football development, which encompass the following aspects:

Physical Fitness: Measurable through standardized fitness tests, physical fitness represents the athletes' physiological readiness and capabilities. Significant studies have revealed substantial disparities in physical fitness between students engaged in school-based sports programs and their non-participating peers. Those actively involved in sports exhibited higher levels of cardiovascular endurance, increased muscular strength, enhanced flexibility, and more favorable body composition (Smith, & Johnson, 2018). There is a positive correlation between the consistency and intensity of sports participation and improvements in physical fitness. Students who consistently participated in sports programs, including football, demonstrated the most significant enhancements in their physical fitness levels. Moreover, there is a significant impact of school-based sports programs on the physical fitness of children and adolescents. It underscores the importance of integrating physical activity into educational curricula to promote healthier and more active youth. This research will serve as a valuable resource for educators, policymakers, and parents, advocating for the role of sports participation in shaping the overall health and well-being of young individuals.

Technical Skills: Evaluated by assessing performance metrics such as passing accuracy and dribbling success rate, technical skills denote the mastery of fundamental football techniques. Childhood and adolescence represent crucial stages in the establishment of lifelong health habits. Physical activity is known to be a key contributor to overall well-being during these formative years. Football, as a popular team sport, presents an opportunity for children to engage in regular physical exercise and potentially improve their cardiovascular fitness (Brown, & Wilson, 2020). Physical activity holds a crucial place in a student's holistic well-being, and its influence on cognitive functions has been a subject of extensive discussion. In the study of White & Smith 2021, it was indicated that engaging in physical activity may yield beneficial effects on aspects such as attentiveness, memory,

and academic attainment. Nevertheless, the exact nature of the connection between physical activity and academic performance continues to be an area of active research and exploration.

Tactical Knowledge: Quantifiable through decision-making assessments during matches, tactical knowledge reflects the players' understanding of game strategies and situational awareness. The research conducted by Johnson and Anderson underscores the significant influence of team sports, including football, in nurturing leadership skills among young individuals. Their study goes beyond mere assertions by offering tangible examples and empirical data that validate the idea that engaging in team sports contributes to the development of leadership qualities in youth.

Psychological Aspects: Evaluated using surveys or self-report questionnaires, psychological aspects encompass motivation, self-confidence, and other mental attributes that influence player performance. While Brown and Jackson's case study recommended that youth participation in football underscores the multifaceted ways in which this sport contributes to discipline and personal development, it also reveals that through structured routines, accountability, goal setting, adaptability, character building, and mentorship, football programs serve as effective vehicles for instilling valuable life skills that extend well beyond the boundaries of the playing field.

Football Program Variables:

The effectiveness of middle school football development will be intricately linked to various program variables within Guangzhou Experimental Foreign Language School, which includes:

Frequency and Duration: The frequency and duration of football practices and training sessions will determine the intensity and consistency of training.

Coaching Staff: The qualifications and experience of coaching staff will impact the quality of instruction and skill development. The research conducted by Johnson and Anderson underscores the significant influence of coaching and mentorship in nurturing leadership skills among young individuals.

Equipment and Facilities: The availability and quality of equipment and facilities will influence the training environment and opportunities for skill refinement.

Participation Rates: Participation rates and attendance of students within the football program will be vital indicators of engagement and commitment. Simultaneously, these findings carry profound implications for various stakeholders, including parents, educators, coaches, and organizations dedicated to youth development. They underscore the critical importance of encouraging and facilitating youth participation in team sports, not only for the enhancement of physical fitness but also for the cultivation of crucial leadership aptitudes.

Demographic and Background Variables:

Recognizing that academic and athletic development may be influenced by various demographic and background factors, the study also considers variables such as socioeconomic status, parental involvement, and prior academic performance. These demographic and background variables may play a role in shaping a student's overall development, including their participation in football programs and their responses to physical fitness and character development.

This study aims to provide valuable insights that inform educational policies, enhance football programs, and contribute to the holistic development of students at Guangzhou Experimental Foreign Language School and similar institutions.

In summary, this conceptual framework offers a comprehensive roadmap for the study's quantitative analysis, outlining the relationships between middle school football development, academic performance, program variables, and demographic factors. By following this structured approach, the researcher aims to uncover the complexities of middle school football development at GZFLS and its broader implications for the future.

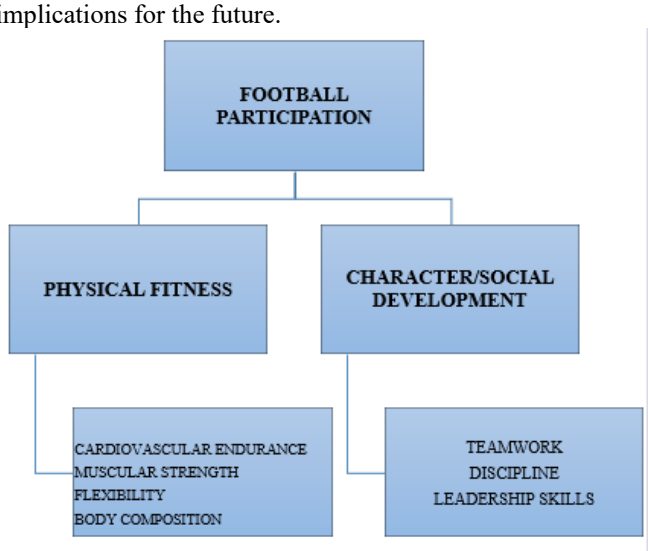

Fig 1. RESEARCH PARADIGM

1.22.Hypotheses

These hypotheses serve as the foundation for testing the research questions and guiding the data collection and analysis across the various areas of investigation. The researcher applies statistical methods to determine whether to accept or reject the null hypotheses, based on the evidence gathered throughout the study.

H01: There is no significant difference in the physical fitness levels (measured by cardiovascular endurance, muscular strength, flexibility, and body composition) between middle school students aged 18-19 who participate in football programs at GZFLS and those who do not participate.

H02: Participation in football programs at GZFLS has no significant impact on the cognitive development (assessed through academic performance, problem-solving skills, and cognitive functions) of middle school students aged 18-19.

H03: There is no significant difference in the social-emotional development (measured by social skills, emotional well-being, and psychosocial competencies) of middle school students aged 18-19 who are engaged in football programs at GZFLS compared to their peers who are not engaged in such programs.

H04: Football program participation at GZFLS does not significantly influence the moral development (evaluated through moral reasoning, ethical behavior, and adherence to rules and fairness) of middle school students aged 18-19.

H05: The long-term impact of participating in football programs at GZFLS on the physical health, cognitive abilities, social-emotional skills, and moral development of middle school students aged 18-19 is not significantly different from those students who do not participate in football programs.

These null hypotheses will be evaluated against alternative hypotheses, which posit that there is an effect, difference, or

relationship, through the collection and analysis of data. The decision to reject or fail to reject these null hypotheses will inform the conclusions of the thesis concerning the impact of football program participation on the holistic development of middle school students at GZFLS.

1.23.Definition of Terms:

For this endeavor entitled "Quantifying the Impact of Football Program Participation on the Holistic Development of Middle School Students: Basis for Training Program Initiatives," defining key terms is crucial to ensure clarity and a shared understanding of the study's scope and focus. Below are definitions for the essential terms used throughout the thesis proposal:

1. Football Program Participation

Refers to the involvement of middle school students in organized football activities, including training, practice sessions, and competitive matches, offered by or at Guangzhou Experimental Foreign Language School (GZFLS). Participation can vary in frequency, intensity, and duration.

2. Holistic Development

A comprehensive approach to education and growth that encompasses physical, cognitive, social-emotional, and moral dimensions of a student's development. It emphasizes the interconnectedness of these areas in fostering well-rounded individuals.

3. Middle School Students

For the purposes of this study, middle school students are defined as individuals enrolled in grades corresponding to the ages of 18-19 years at GZFLS. This age range is particularly focused on students transitioning from adolescence into early adulthood.

4. Physical Fitness

A state of health and well-being that is achieved through regular physical activity. In this context, physical fitness encompasses cardiovascular endurance, muscular strength, flexibility, and body composition.

5. Cognitive Development

Refers to the progression of thinking, problem-solving, and decision-making abilities. This includes academic performance and cognitive functions such as attention, memory, and logical reasoning.

6. Social-Emotional Development

Involves the growth of skills necessary for healthy social interaction and emotional regulation. It includes the development of social skills, emotional well-being, psychosocial competencies, and a sense of identity.

7. Moral Development

The process through which individuals acquire and understand moral principles, ethical behavior, and the concept of justice. It involves the development of moral reasoning and the adoption of societal norms and values.

8. Quantitative Analysis

A methodological approach that involves the use of statistical, mathematical, or computational techniques to analyze data and quantify variables, allowing for the measurement and comparison of the impact of football program participation on student development.

9. Training Program Initiatives

Refers to structured plans or interventions designed to improve the delivery and effectiveness of football programs. These initiatives aim to enhance the holistic development of students through tailored training methods that address physical, cognitive, social-emotional, and moral growth.

10. Guangzhou Experimental Foreign Language School (GZFLS)

An educational institution located in Guangzhou, China, serving as the setting for this study. GZFLS is known for integrating sports, including football, into its educational curriculum to promote holistic student development.

By clearly defining these terms, the thesis proposal establishes a solid foundation for the research, ensuring that all stakeholders have a common understanding of the study's key components and objectives.

2. Methods and Procedures

2.1. Research Design:

The study entitled "Quantifying the Impact of Football Program Participation on the Holistic Development of Middle School Students: Basis for Training Program Initiatives" focused exclusively on a quantitative research design that streamlined the approach to rigorously assess the impact of football programs on various dimensions of student development, including physical fitness, academic performance, and social-emotional growth. Here is an outline of the quantitative-only research design.

2.2. Research Design

Quantitative Comparative Study

The study quantitatively evaluated the differences in physical fitness levels, academic achievements, and social-emotional development metrics between middle school students aged 18-19 who participated in football programs at Guangzhou Experimental Foreign Language School (GZFLS) and their non-participating counterparts.

2.3. Sample Selection

2.3.1. Population:

Middle school students aged 18-19 at GZFLS.

2.3.2. Sampling Method:

Stratified random sampling was employed to create comparable groups of football program participants and non-participants. Stratification factors included sex and grade level to control for potential confounding variables.

2.4. Data Collection Methods

2.4.1. Demographic Information:

Collection of basic demographic data (age, sex,) through a structured questionnaire to profile the study participants was employed.

2.5. Physical Fitness Assessment:

Standardized tests for measuring cardiovascular endurance (e.g., 1000M test), muscle strength (e.g., pull-up test), flexibility (e.g., sit-and-reach test), and body composition (BMI or skin fold measurement) was used by the researcher.

2.6. Academic Performance:

The study conducted a quantitative analysis of academic records to evaluate grades and standardized test scores, aiming to identify any correlations between participation in football programs and academic achievement.

2.7. Social-Emotional Development:

The researcher administered validated quantitative surveys designed to assess social skills, emotional regulation, and

leadership qualities among students.

2.8. Data Analysis

2.8.1. Statistical Techniques:

1. Shapiro-Wilk Test

The Shapiro-Wilk test was employed to assess the normality of the data distribution in this study, which was essential for determining the appropriateness of parametric tests in analyzing the impacts of football program participation on the holistic development of middle school students. If the p-value from the Shapiro-Wilk test exceeded 0.05, the data was considered normally distributed, thereby allowing the application of parametric tests to evaluate relationships between football participation and various developmental metrics. Conversely, if the p-value fell below 0.05, it indicated a deviation from normal distribution, necessitating the use of non-parametric tests to analyze the data accurately.

2. Parametric Tests

Parametric tests, such as t-tests or ANOVA, were applied in the study when the data met the assumption of normality (p-value > 0.05). These statistical methods were chosen based on the number of groups being compared and the specific research questions regarding the impact of football program participation on the holistic development of middle school students.

3. Non-Parametric Tests

When the Shapiro-Wilk test indicated a violation of normality (p-value < 0.05), the study employed non-parametric tests. Common non-parametric methods used included the Mann-Whitney U test for comparing two independent samples, the Wilcoxon signed-rank test for paired samples, and the Kruskal-Wallis test for three or more independent samples. In summary, the study utilized a combination of the Shapiro-Wilk test for normality assessment, applying parametric tests for normally distributed data and non-parametric tests for data that did not meet this assumption. This comprehensive approach ensured that the statistical analysis was well-suited to the characteristics of the data, allowing for valid conclusions to be drawn from the research findings.

2.9. Ethical Considerations

Since the study involves participants who are 18-19 years old and therefore not considered minors, ethical guidelines will still be rigorously followed to ensure the protection of participants' rights and well-being. The adjusted ethical considerations include:

- Informed Consent: Even though participants are legally adults, informed consent was obtained to ensure participants are fully aware of the study's nature, procedures, potential risks, and benefits. This consent was documented in writing.
- Confidentiality and Anonymity: Measures were taken to protect the identity and personal information of all participants. Data were anonymized, and personal identifiers were removed or coded to maintain confidentiality. Results were reported in aggregate form to prevent the identification of individual responses.
- Voluntary Participation: Participants were informed that their involvement in the study was entirely voluntary, with no penalties for refusing to participate or withdrawing from the study at any stage.
- Data Security: Collected data were securely stored in password-protected electronic formats or locked physical storage, accessible only to the researcher. Data were retained for a period as required by institutional guidelines, after which it will be properly disposed of or deleted.
- Transparency and Debriefing: Participants were provided with clear information about the study's purpose and procedures. Upon completion of the study, participants were debriefed, offering insights into the preliminary findings and the study's contribution to the field.

2.10.Expected Outcomes

The quantitative comparative study design is expected to yield empirical data on the impact of football program participation on the holistic development of middle school students aged 18-19. By focusing solely on quantitative methods, the research aims to provide objective, measurable insights into the benefits of such programs, potentially informing future educational policies and training initiatives aimed at integrating sports into school curricula for enhanced student development.

3. Results, Analysis, and Interpretation

This chapter presents the data in a methodical tabular format and provides a comprehensive explanation and analysis of the data. The conclusions in this section are derived from a statistical analysis conducted using jamovi 2.3.28.

Preliminary Analysis

Reliability

Table A. Reliability Measurement – Assessment of Physical Fitness (Cronbach's Alpha)

Construct	Cronbach's Alpha	No. of Item/s Deleted	No. of Item/s Retained
Cardiovascular Endurance	0.86	0	5
Muscular Strength	0.83	0	5
Flexibility	0.81	0	5
Body Composition	0.82	0	5
Assessment of Holistic Development			
Construct	**Cronbach's Alpha**	**No. of Item/s Deleted**	**No. of Item/s Retained**
Cognitive	0.78	0	5
Emotional	0.94	0	5
Social	0.90	0	5

The Shapiro-Wilk test, a statistical test specifically developed to evaluate the normality of data, will be employed to ascertain the suitability of the parametric test for the research aims. Parametric testing is employed when the p-value exceeds 0.05. When the p-values are below 0.05, it raises skepticism about the data's adherence to a uniform distribution. Therefore, non-parametric testing will be employed.

The research inquiries addressed in this paper are revisited. Consequently, the results are presented together with their justifications and evaluations.

Table A presents the evaluation of the reliability of the scales used to measure internal consistency of the assessment of the level of physical fitness based on cardiovascular endurance, muscular strength, flexibility, and body composition, as well as assessment of holistic development in terms of cognitive, emotional, and social aspects. Cronbach's alpha (CA) will be used to evaluate internal consistency measurements. Nunnally (1978) and Fornell and Larker (1981) state that a coefficient alpha (CA) value of 0.70 or higher implies high-quality items as well as internal consistency. The calculated coefficient alpha (CA) values vary from 0.78 to 0.94, suggesting that all of the items demonstrate satisfactory quality and demonstrate notable internal consistency.

Table B. Normality Test (Shapiro-Wilk)

	W	p
Physical Fitness Levels	0.84	0.001
Holistic Development	0.96	0.045

Note. A low p-value suggests a violation of the assumption of normality

Both p-values derived from the Shapiro-Wilk test are below the significance level of 0.05, indicating that the scores do not conform to a normal distribution. Similarly, the histogram demonstrates that the data has positive skewness. Hence, to determine if there are significant differences and relationships among the variables, we will utilize non-parametric tests such as the Mann-Whitney U, Kruskal-Wallis, and Spearman's rho connection.

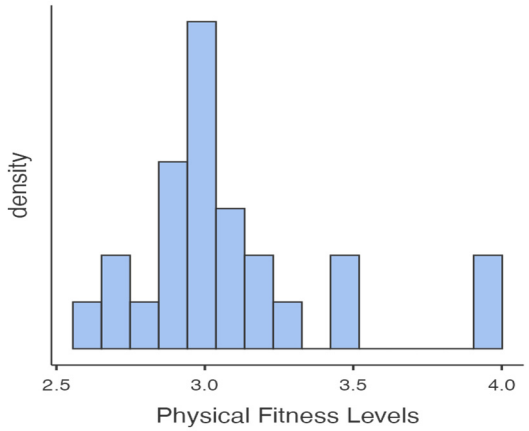

Fig 2. Physical fitness levels

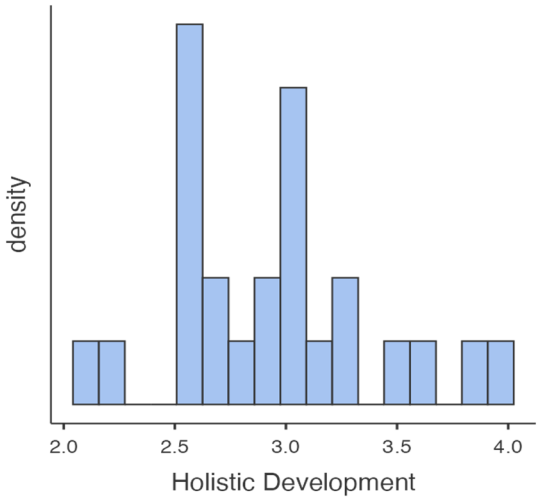

Fig 3. Holistic development

Research Question 1: What is the profile of the respondents in terms of sex and age?

Table 1. Frequencies and Percentage of Demographic Factors

Sex	Counts	% of Total
Female	6	24 %
Male	19	76 %
Age		
25-30	14	56 %
31-35	7	28 %
36-40	4	16 %

Table 1 presents the frequency and percentages of demographic information for a specific group of instructors and coaches, encompassing their gender and age. According to the tabulated statistics, 24% of the participants were female and 76% were male, suggesting that the majority of the respondents are male coaches and teachers.

In terms of age, 56% fell within the 25-30 age range, 28% were aged 31-35, and 16% were aged 36-40. This indicates that the bulk of the participants fall between the age range of 25 and 30 years.

Research Question 2: What are the current physical fitness levels of middle school students who are actively participating in football programs in terms of:

3.1. Cardiovascular Endurance

Table 2. Assessment of the Students' Current Physical Fitness Level who are Participating in Football Programs in terms of Cardiovascular Endurance

Indicators	Mean	SD	Verbal Interpretation	Rank
1. My students were able to maintain a steady pace throughout the cardiovascular endurance test.	2.80	0.76	Average	5
2. My students felt that my cardiovascular endurance was adequately challenged during the test.	3.28	0.54	Average	2
3. My students felt appropriately fatigued after completing the cardiovascular endurance test.	3.16	0.55	Average	3
4. My students believe that regular cardiovascular endurance testing is beneficial for my football performance.	3.40	0.58	Average	1
5. The frequency of cardiovascular endurance testing in training program is adequate for my students.	3.04	0.61	Average	4
COMPOSITE MEAN	**3.14**	**0.37**	**Average**	

Legend: 1.00-1.50: Strongly Disagree (Very Low); 1.51-2.50: Disagree (Low); 2.51-3.50; Agree (Average); 3.51-4.00: Strongly Agree (High)

Table 2 displays an assessment of the kids' present cardiovascular endurance level who are engaged in football programs, as evaluated by coaches and teachers. The gathered statistics indicate that the composite mean score is 3.14, with a standard deviation of 0.37, suggesting an average rating. This means that the teachers and coaches acknowledge that their students perceive regular cardiovascular endurance testing as advantageous for their football performance (M = 3.40), believe their cardiovascular endurance was adequately tested during the assessment (M = 3.28), and experience appropriate fatigue after completing the cardiovascular endurance test (M = 3.16). After analyzing their responses, it was found that item number 4 had the greatest mean score of 3.40, while item number 1 (indicating the ability of my pupils to keep a consistent pace during the cardiovascular endurance test) had the lowest mean score of 2.80.

3.2. Muscular Strength

Table 3. Assessment of the Students' Current Physical Fitness Level who are Participating in Football Programs in terms of Muscular Strength

Indicators	Mean	SD	Verbal Interpretation	Rank
1. My students felt that my muscular strength was adequately challenged during the test.	3.16	0.62	Average	2
2. The test duration was appropriate for assessing my students' muscular strength.	3.04	0.54	Average	5
3. My students have a clear understanding of areas they need to improve based on the test results.	3.00	0.50	Average	3.5
4. The frequency of muscular strength testing in training program is adequate for my students.	3.00	0.65	Average	3.5
5. My students see improvements in my strength with regular testing.	3.20	0.58	Average	1
COMPOSITE MEAN	**3.08**	**0.41**	**Average**	

Legend: 1.00-1.50: Strongly Disagree (Very Low); 1.51-2.50: Disagree (Low); 2.51-3.50; Agree (Average); 3.51-4.00: Strongly Agree (High)

Table 3 presents a concise overview of the assessment of the students' present muscle strength, who are engaged in football programs, in relation to their physical fitness. The composite mean score is 3.08, indicating an average rating, as supported by a standard deviation of 0.41. The data indicates a consensus among coaches and teachers that students experience enhanced strength through consistent testing (M = 3.20), perceive their muscular strength to be sufficiently challenged during the test (M = 3.16), and possess a clear comprehension of the areas they need to improve based on the test results (M = 3.00). Based on the participants' feedback, item number 5 obtained the greatest average score of 3.20, while item number 2 (Assessing my pupils' bodily power, the test time was suitable) received the lowest average score of 3.04.

3.3. Flexibility

Table 4 presents an assessment of the students' current physical fitness level who are participating in football programs in terms of flexibility. The study found that the composite mean score was 3.05, with a standard deviation of 0.42, indicating an average assessment. This suggests that the teachers and coaches agree that their students believe that regular flexibility testing is beneficial for their football performance (M = 3.20), that their students felt appropriately stretched after completing the flexibility test (M = 3.08), and that the frequency of flexibility testing in training program is adequate for their students

Table 4. Assessment of the Students' Current Physical Fitness Level who are Participating in Football Programs in terms of Flexibility

Indicators	Mean	SD	Verbal Interpretation	Rank
1. My students were able to perform all the required movements during the flexibility test.	2.84	0.69	Average	5
2. My students felt that their flexibility was adequately challenged during the test.	3.04	0.54	Average	4
3. My students believe that regular flexibility testing is beneficial for their football performance.	3.20	0.50	Average	1
4. My students felt appropriately stretched after completing the flexibility test.	3.08	0.57	Average	2.5
5. The frequency of flexibility testing in training program is adequate for my students.	3.08	0.49	Average	2.5
COMPOSITE MEAN	**3.05**	**0.42**	**Average**	

Legend: 1.00-1.50: Strongly Disagree (Very Low); 1.51-2.50: Disagree (Low); 2.51-3.50; Agree (Average); 3.51-4.00: Strongly Agree (High)

3.4. Body Composition

Table 5. Assessment of the Students' Current Physical Fitness Level who are Participating in Football Programs in terms of Body Composition

Indicators	Mean	SD	Verbal Interpretation	Rank
1. The methods used for the body composition test were suitable for my students' needs.	3.20	0.65	Average	2.5
2. My students believe that regular body composition testing is beneficial for their football performance.	3.28	0.54	Average	1
3. My students believe that this test is a good measure of body composition for football players.	3.00	0.71	Average	4
4. My students felt no discomfort after completing the body composition test.	2.80	0.71	Average	5
5. My students believe the body composition test should be conducted regularly.	3.20	0.58	Average	2.5
COMPOSITE MEAN	**3.10**	**0.44**	**Average**	

Legend: 1.00-1.50: Strongly Disagree (Very Low); 1.51-2.50: Disagree (Low); 2.51-3.50; Agree (Average); 3.51-4.00: Strongly Agree (High)

Table 5 presents a summary of the evaluation of the participating students' current physical fitness level in football programs, specifically in terms of body composition, as assessed by chosen teachers and coaches. According to the data presented in the table, the composite mean score is 3.10 with a standard deviation of 0.44, indicating an average evaluation. These findings suggest that the participants acknowledge their students' belief in the positive effects of regular body composition testing on their football performance (M = 3.28). Additionally, they agree that the methods employed for the body composition test were appropriate for their students' requirements (M = 3.20). Furthermore, they concur that the body composition test should be conducted on a regular basis (M = 3.20). Upon analyzing their responses, it was found that item number 2 had the greatest average score of 3.28, and item number 4 (regarding the absence of discomfort reported by students after completing the body composition exam) had the lowest average score of 2.80.

Table 6. Summary of the Assessment of the Students' Current Physical Fitness Level who are Participating in Football Programs

	N	Mean	SD	Verbal Interpretation
Cardiovascular Endurance	25	3.14	0.37	Average
Muscular Strength	25	3.08	0.41	Average
Flexibility	25	3.05	0.42	Average
Body Composition	25	3.10	0.44	Average
Physical Fitness Levels	25	3.09	0.34	Average

Legend: 1.00-1.50: Strongly Disagree (Very Low); 1.51-2.50: Disagree (Low); 2.51-3.50; Agree (Average); 3.51-4.00: Strongly Agree (High)

Research Question 3: What are the holistic development levels of middle school students who are

actively participating in football program in terms of:

3.5. Cognitive

Table 7. Assessment of the Students' Holistic Development Level who are Participating in Football Programs in terms of Cognitive

Indicators	Mean	SD	Verbal Interpretation	Rank
1. Nutritional support and supplements can impact my sports performance.	2.80	0.58	Proficient	3
2. The student can stay calm and composed under pressure.	2.72	0.79	Proficient	4
3. The student is able to maintain a positive mindset even when the game is not going well.	2.68	0.69	Proficient	5
4. The student feels that my mental performance is as important as my physical performance in football.	3.00	0.58	Proficient	2
5. The student believes that cognitive training is beneficial for them as football players.	3.04	0.54	Proficient	1
COMPOSITE MEAN	**2.85**	**0.46**	**Proficient**	

Legend: 1.00-1.50: Strongly Disagree (Not Evident); 1.51-2.50: Disagree (Developing); 2.51-3.50; Agree (Proficient); 3.51-4.00: Strongly Agree (Advanced)

Table 7 presents an assessment of the cognitive development level of adolescents who are involved in football programs as part of their overall holistic development. The composite mean score is 2.85, indicating an average evaluation, while the standard deviation is 0.46, suggesting that cognitive skills are proficient. The data analysis indicated that both teachers and coaches concur that students perceive cognitive training as advantageous for their development as football players (M = 3.04). Additionally, students believe that their mental performance holds equal importance to their physical performance in football (M = 3.00). Furthermore, students acknowledge that nutritional support and supplements can have an impact on their sports performance (M = 2.80). Based on the feedback, item number 5 obtained the greatest average score, while item number 3 (the student's ability to retain a positive outlook even under unfavorable game situations) received the lowest average score of 2.68.

3.6. Emotional

Table 8. Assessment of the Students' Holistic Development Level who are Participating in Football Programs in terms of Emotional

Indicators	Mean	SD	Verbal Interpretation	Rank
1. The student can effectively manage his emotions during a game.	2.80	0.65	Proficient	4
2. The student remains calm when faced with unexpected challenges on the field.	2.92	0.81	Proficient	3
3. The student quickly recovers emotionally from setbacks during a game.	2.72	0.74	Proficient	5
4. The student maintains good relationships with his teammates, regardless of the game's outcome.	3.00	0.71	Proficient	2
5. The student can communicate his emotions effectively with his coaches and teammates.	3.04	0.61	Proficient	1
COMPOSITE MEAN	**2.90**	**0.53**	**Proficient**	

Legend: 1.00-1.50: Strongly Disagree (Not Evident); 1.51-2.50: Disagree (Developing); 2.51-3.50; Agree (Proficient); 3.51-4.00: Strongly Agree (Advanced)

Table 8 displays an evaluation of the emotional aspect of the overall development level of the students who are engaged in football programs. The composite's mean score is 2.90 with a standard deviation of 0.53, suggesting a moderate grade. These findings indicate that the teachers and coaches believe that the student is capable of effectively expressing his emotions to his coaches and teammates (M = 3.04), maintains positive relationships with his teammates regardless of the game's outcome (M = 3.00), and remains composed when confronted with unexpected challenges on the field (M = 2.92). According to the statistics, item number 5 had the greatest average score of 3.04, while item number 3 (which refers to the student's ability to rapidly recover emotionally from setbacks during a game) had the lowest average score of 2.72.

3.7. Social

Table 9 presents an evaluation of the students' overall growth level in terms of social skills, as assessed by their teachers and coaches, who are engaging in football programs. The table data indicates that the average score is 3.07, with a low level of variation from this average, as shown by a standard deviation of 0.49. This means that they recognize the student's enjoyment in engaging in team activities beyond regular practices and games (M = 3.16), receives sufficient support and encouragement from fellow teammates (M = 3.16), and that the coach offers constructive comments and encouragement (M = 3.12). Based on the feedback received, item numbers 1 and 3 achieved the greatest average score of 3.16, while item number 5 (which assesses the student's ability to handle conflicts with teammates in a good way) had the lowest average score of 2.84.

Table 9. Assessment of the Students' Holistic Development Level who are Participating in Football Programs in terms of Social

Indicators	Mean	SD	Verbal Interpretation	Rank
1. The student enjoys participating in team activities outside of regular practices and games.	3.16	0.62	Proficient	1.5
2. The student feels comfortable expressing his thoughts and ideas to his coach.	3.08	0.57	Proficient	4
3. The student receives adequate support and encouragement from his teammates.	3.16	0.62	Proficient	1.5
4. The coach provides constructive feedback and encouragement.	3.12	0.67	Proficient	3
5. The student is able to resolve conflicts with his teammates in a positive manner.	2.84	0.75	Proficient	5
COMPOSITE MEAN	**3.07**	**0.49**	**Proficient**	

Legend: 1.00-1.50: Strongly Disagree (Not Evident); 1.51-2.50: Disagree (Developing); 2.51-3.50; Agree (Proficient); 3.51-4.00: Strongly Agree (Advanced)

Table 10. Summary of the Assessment of the Students' Holistic Development Level who are Participating in Football Programs

	N	Mean	SD	Verbal Interpretation
Cognitive	25	2.85	0.46	Developing
Emotional	25	2.90	0.53	Developing
Social	25	3.07	0.49	Developing
Holistic Development	25	2.94	0.45	Developing

Legend: 1.00-1.50: Strongly Disagree (Not Evident); 1.51-2.50: Disagree (Developing); 2.51-3.50; Agree (Proficient); 3.51-4.00: Strongly Agree (Advanced)

Research Question 4: Is there a significant difference between the profile, fitness levels and holistic development of the middle school students who are actively participating in football program?

A. Fitness Level

4.1a Sex

Table 11. Difference in the Assessment of the Students' Fitness Level Based on Sex

Fitness Level	Sex	N	Mean	U	p	Interpretation
Cardiovascular Endurance	Male	6	3.23	45.00	0.454	Not Significant
	Female	19	3.11			
Muscular Strength	Male	6	3.07	46.50	0.507	Not Significant
	Female	19	3.08			
Flexibility	Male	6	3.13	49.50	0.640	Not Significant
	Female	19	3.02			
Body Composition	Male	6	3.07	53.50	0.845	Not Significant
	Female	19	3.11			
Overall	Male	6	3.13	52.00	0.773	Not Significant
	Female	19	3.08			

The Mann-Whitney U test was performed to determine how the assessment of the students' fitness level differs when the respondents are grouped based on their assigned sex. Based on the analysis, it generated p-values that are greater than the 0.05 level of significance for all the variables. This means that the researcher failed to reject the null hypothesis. Hence, it can be concluded that regardless of their assigned sex, the assessment for the fitness level in terms of cardiovascular endurance ($p = 0.454$), muscular strength ($p = 0.507$), flexibility ($p = 0.640$), body composition ($p = 0.845$), and overall ($p = 0.773$) is the same.

4.2a Age

The analysis of the Kruskal-Wallis test revealed p-values that are higher than the 0.05 level of significance for cardiovascular endurance ($H = 2.20$; $p = 0.334$), muscular strength ($H = 0.12$; $p = 0.941$), flexibility ($H = 1.06$; $p = 0.589$), body composition ($H = 0.20$; $p = 0.907$), and overall ($H = 0.51$; $p = 0.774$). The researcher will accept the null hypothesis and conclude that the age-based grouping of teachers and coaches does not significantly affect the assessment of students' fitness level.

Table 13 presents how the assessment of holistic development of students as rated by teachers and coaches differs when they are classified based on their sex. Since all the generated p-values for cognitive ($p = 0.650$), emotional ($p = 0.819$), social ($p = 0.821$), and overall ($p = 0.848$) are higher than the 0.05 level of significance, the researcher will accept the null hypothesis. Hence, it can be inferred that regardless

of their sex group, their assessment of students' holistic development is the same.

Table 12. Difference in the Assessment of the Students' Fitness Level Based on their Age

Fitness Level	Age	N	Mean	H	p	Interpretation
Cardiovascular Endurance	25-30	14	3.13	2.20	0.334	Not Significant
	31-35	7	3.03			
	36-40	4	3.35			
Muscular Strength	25-30	14	3.04	0.12	0.941	Not Significant
	31-35	7	3.09			
	36-40	4	3.20			
Flexibility	25-30	14	2.99	1.06	0.589	Not Significant
	31-35	7	3.06			
	36-40	4	3.25			
Body Composition	25-30	14	3.09	0.20	0.907	Not Significant
	31-35	7	3.09			
	36-40	4	3.15			
Overall	25-30	14	3.06	0.51	0.774	Not Significant
	31-35	7	3.06			
	36-40	4	3.24			

B. Holistic Development

4.3b Sex

Table 13. Difference in the Assessment of the Students' Holistic Development Based on Sex

Fitness Level	Sex	N	Mean	U	p	Interpretation
Cognitive	Male	6	2.80	49.50	0.650	Not Significant
	Female	19	2.86			
Emotional	Male	6	2.87	53.00	0.819	Not Significant
	Female	19	2.91			
Social	Male	6	3.17	53.00	0.821	Not Significant
	Female	19	3.04			
Overall	Male	6	2.94	53.50	0.848	Not Significant
	Female	19	2.94			

4.4b Age

Table 14. Difference in the Assessment of the Students' Holistic Development Based on their Age

Fitness Level	Age	N	Mean	H	p	Interpretation
Cognitive	25-30	14	2.83	0.06	0.973	Not Significant
	31-35	7	2.83			
	36-40	4	2.95			
Emotional	25-30	14	2.79	1.09	0.580	Not Significant
	31-35	7	2.97			
	36-40	4	3.15			
Social	25-30	14	2.99	0.97	0.617	Not Significant
	31-35	7	3.09			
	36-40	4	3.35			
Overall	25-30	14	2.87	0.87	0.647	Not Significant
	31-35	7	2.96			
	36-40	4	3.15			

The analysis of the Kruskal-Wallis test revealed p-values that are higher than the 0.05 level of significance for cognitive ($p = 0.973$), emotional ($p = 0.580$), social ($p = 0.617$), and overall ($p = 0.647$), implying the acceptance of the null hypothesis. Hence, it can be concluded that there is no significant difference in the assessment of the students' holistic development when the respondents are grouped based on their age group.

Research Question 5: Is there a significant relationship between the physical fitness levels and holistic development of the middle school students who are actively participating in football program?

Table 15. Correlation Matrix between Physical Fitness and Holistic Development

	Cognitive	Emotional	Social	Overall
Cardiovascular Endurance	0.42	0.54	0.57	0.55
	0.036	0.005	0.003	0.005
Muscular Strength	0.21	0.33	0.50	0.40
	0.012	0.010	0.010	0.050
Flexibility	0.63	0.54	0.68	0.66
	< .001	0.006	< .001	< .001
Body Composition	0.68	0.64	0.72	0.76
	< .001	< .001	< .001	< .001
Overall	0.59	0.65	0.83	0.77
	0.002	< .001	< .001	< .001

Legend: .00-0.19: Very Weak; 0.20-0.39: Weak; 0.40-0.59: Moderate; 0.60-0.79: Strong; 0.80-1.00: Very Strong

Table 15 displays the correlation between the assessment of physical fitness and holistic development of students based on the rating given by their teachers and coaches. The Spearman's rho correlation analysis yielded p-values below the 0.05 significance level for all variables. This means that there is a significant correlation among the variables. In particular, the assessment of physical fitness (cardiovascular endurance, muscular strength, flexibility, body composition, and overall) is positively correlated with the assessment of holistic development (cognitive, emotional, social, and overall). The obtained correlation coefficients ranging from 0.21 to 0.83 (weak to very strong positive) imply that as the level of physical fitness increases, the level of holistic development will also increase, and vice versa.

4. Summary of Findings, Conclusion and Recommendation

4.1. Summary of Findings

The study focused on evaluating the physical fitness levels and holistic development of middle school students engaged in football programs. The findings revealed critical insights into their overall well-being and performance, shedding light on their demographic profile, fitness levels, and cognitive, emotional, and social growth.

Demographic data showed that the majority of participants were male, comprising 76% of the respondents, while females accounted for 24%. The age distribution indicated that younger coaches and teachers predominantly led the football programs, with most respondents falling within the 25-30 age group, followed by those aged 31-35, and a smaller proportion aged 36-40.

The assessment of students' physical fitness levels highlighted four key dimensions: cardiovascular endurance, muscular strength, flexibility, and body composition. On average, students demonstrated moderate fitness levels across all dimensions. Cardiovascular endurance emerged as an area of consistent performance, with students acknowledging the benefits of regular testing and reporting challenges in maintaining a steady pace during tests. Similarly, muscular strength evaluations indicated progress through consistent training, though the duration of assessments occasionally felt inadequate. Flexibility, while beneficial to their development, revealed struggles in executing required movements during testing. Body composition, an integral component for football players, showed average outcomes, though some discomfort during assessments was noted. Collectively, these results reflect a need for tailored interventions to enhance specific fitness dimensions while maintaining an overall balanced approach.

In terms of holistic development, students displayed proficient levels of cognitive, emotional, and social growth. Cognitive development assessments revealed an understanding of the importance of mental performance in football, with students benefiting from cognitive training exercises. However, maintaining optimism during challenging game scenarios remained a key area for improvement. Emotional development highlighted the ability to communicate effectively with peers and coaches and to sustain relationships irrespective of game outcomes, though emotional recovery from setbacks required additional focus. Socially, students excelled in team dynamics, particularly in enjoying team-building activities and feeling supported by their peers. Yet, conflict resolution within teams emerged as a slight challenge.

Overall, while students demonstrated moderate physical fitness and commendable holistic growth, opportunities for improvement were identified. These include helping students maintain steady paces during cardiovascular tests, building emotional resilience, and equipping them with better conflict resolution strategies. The study emphasizes the need for structured physical and cognitive training integrated within football programs to address these gaps effectively.

Overall, these findings underscore the significant role of football programs not only in fostering physical fitness but also in promoting the cognitive, emotional, and social

development of students. By addressing identified areas for improvement, coaches and educators can better support students in achieving well-rounded growth, preparing them for both the demands of competitive sports and the challenges of life beyond the field.

4.2. Conclusion

The findings of this study offer critical insights into the interplay between physical fitness and holistic development among middle school students participating in football programs. Overall, the results underscore the multifaceted impact of these programs, highlighting areas of strength while identifying opportunities for enhancement.

The demographic profile revealed a predominance of male students and younger coaches and teachers, suggesting that football programs are not only an arena for physical development but also a platform for fostering leadership and mentorship among young educators. This demographic trend reflects the sport's capacity to attract a diverse participant base, albeit with room for improved gender inclusivity.

In terms of physical fitness, the moderate performance levels across cardiovascular endurance, muscular strength, flexibility, and body composition point to the effectiveness of football programs in providing foundational fitness training. However, challenges such as sustaining pacing in cardiovascular activities, executing flexibility movements, and discomfort during body composition assessments indicate the need for more targeted interventions. These findings emphasize the importance of tailoring training regimens to individual needs and incorporating innovative approaches to fitness testing to ensure both accuracy and comfort for students.

The evaluation of holistic development revealed proficient levels of cognitive, emotional, and social growth, underscoring the broader educational value of football programs. Students demonstrated notable cognitive understanding, emotional communication skills, and social cohesiveness. However, challenges such as emotional recovery after setbacks and resolving team conflicts suggest areas where additional support and training could further enhance their overall development. These findings highlight the importance of integrating psychological and social skills training into sports programs, ensuring that students are equipped to handle both the pressures of competition and interpersonal dynamics.

Taken together, these findings confirm that football programs are instrumental in fostering the physical, cognitive, emotional, and social well-being of middle school students. The results call for a more holistic approach to program design, incorporating tailored fitness interventions, psychological resilience training, and enhanced team-building activities. By addressing the identified gaps, football programs can serve as powerful tools for promoting not only athletic excellence but also lifelong skills and character development.

In conclusion, football programs play a pivotal role in shaping well-rounded individuals capable of thriving in competitive sports and beyond. To maximize their potential, educators and coaches must adopt a comprehensive approach that prioritizes both physical fitness and holistic growth, ensuring that every student benefits from the transformative power of sports.

4.3. Recommendations

Based on the findings of this study, the following recommendations shall be implemented to enhance the physical fitness levels and holistic development of middle school students participating in football programs:

1. Football training programs shall place a greater emphasis on improving cardiovascular endurance. Coaches shall incorporate more aerobic exercises, such as interval training and endurance running, into the training sessions. These activities shall be gradually intensified to enhance students' ability to maintain stamina throughout the game.

2. Regular stretching exercises shall be included as part of the daily warm-up and cool-down routines. Dynamic stretches before practice and static stretches afterward shall be emphasized to improve flexibility, which was found to be one of the lower-scoring areas. Stretching routines focusing on the major muscle groups used in football shall be prioritized to reduce injury risks and enhance mobility.

3. Strength training exercises targeting both upper and lower body muscles shall be integrated into the students' training regimen. Coaches shall ensure that these exercises are age-appropriate, with a focus on bodyweight exercises like push-ups, squats, and lunges. These shall be supplemented with core-strengthening routines to improve overall performance on the field.

4. Coaches and trainers shall regularly monitor the students' body composition to ensure healthy weight management. Nutritional education programs shall be introduced to help students make informed dietary choices that complement their physical activity and support optimal body composition.

5. Cognitive training programs focusing on mental resilience and game strategy shall be incorporated into the football curriculum. Students shall engage in mental exercises such as visualization, mindfulness, and tactical decision-making scenarios. These programs shall help students develop a stronger mindset, which is essential during high-pressure game situations.

6. Nutritional education shall also be provided to students to enhance their understanding of how diet affects performance and mental well-being. Workshops shall be organized to teach students the importance of proper hydration, balanced meals, and recovery nutrition.

7. Emotional regulation strategies, such as coping mechanisms for managing game-related stress and setbacks, shall be taught to students. Psychologists or counselors shall work with the football program to provide regular workshops and one-on-one counseling sessions aimed at improving emotional resilience.

8. Students shall be encouraged to use reflective practices, such as maintaining a journal, to track their emotional responses to different game situations. This reflective process shall help them become more aware of their emotions and better equipped to manage them during competitive matches.

9. Team-building activities shall be introduced to strengthen social bonds among students. These activities shall focus on improving communication, cooperation, and problem-solving skills, all of which are crucial for team dynamics. Group discussions and feedback sessions shall be organized to promote open communication among team members.

10. Conflict management workshops shall be provided to help students navigate interpersonal challenges with their teammates. These sessions shall equip them with tools to resolve conflicts constructively, ensuring a healthy and

supportive team environment.

11. Coaches shall develop individualized training plans for each student, considering their unique strengths and areas for improvement. Regular assessments shall be conducted to tailor these plans, ensuring that every student is given the opportunity to progress both physically and mentally at their own pace.

12. Parents shall be involved in their children's football training journey by attending regular progress meetings and being provided with resources on how to support their child's holistic development at home. Workshops for parents shall be organized to educate them on the role of nutrition, emotional support, and encouragement in their child's athletic and personal growth.

13. A comprehensive monitoring and evaluation system shall be implemented to track students' progress in both physical fitness and holistic development. Coaches, trainers, and educators shall collaborate to create a performance dashboard that tracks improvements and areas requiring further intervention. This system shall also ensure accountability and continuous enhancement of the football program.

By implementing these recommendations, middle school football programs shall foster a more balanced and holistic approach to student-athlete development, ensuring that students not only improve their physical fitness but also grow emotionally, cognitively, and socially.

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