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Academic Self-Efficacy and Sports Mindset among Collegiate Student Volleyball Players in China

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Abstract: The global rise in sedentary lifestyles among adolescents, primarily due to insufficient physical activity, presents a significant public health challenge. In China, physical inactivity is prevalent among school-aged children, with concerns over academic scheduling contributing to a decline in physical education programs. Research suggests that engaging in physical activity enhances cognitive function without compromising academic performance. This study investigates the relationship between the sports mindset and the academic and athletic performance of volleyball players, highlighting the impact of psychological factors such as resilience, focus, and confidence. Exploring these dynamics, the research aims to propose practical strategies to enhance both the athletic experience and academic achievement, ultimately supporting the holistic development of student-athletes.

Keywords: Academic Self-Efficacy, Sports Mindset, Volleyball Players, College.

1. Introduction

Sports have grown to be a significant industry and draw for the general people. The tremendous growth in popularity of both professional and collegiate sports has been facilitated by the print, radio, television, internet, and motion picture industries. Millions are invested in promoting and developing the growth of such physical activities at different colleges.

Physical education in schools has always included the pressure to improve physically, which is seen to possibly apply to all students in the higher level of education. With this, the amount of demand on students' and instructors' pedagogies for personal progress in physical education is rising. So, it should come as no surprise that disputes might potentially develop between the academic and athletic groups at many of the country's schools.

Similar to this, it is probable that sports communities have a bad image when it comes to academic achievement. While many researchers have examined collegiate sports activity and academic achievement (Ferris & Finster, 2004; Gaston-Gayles, 2005), there have been relatively few studies that have focused on self-efficacy and have been conducted in the People's Republic of China.

In addition, study findings suggest that students who engage in school-sponsored sports teams often perform better in school than those who are not participating in athletics (Fredricks & Eccles, 2006; Fujita, 2006; Nelson & Gordon-Larsen, 2006). Sports in schools and physical education are also seen as valuable educational pursuits (Bailey et al., 2009). Five ways that sports participation promoted student success were identified through observations and interactions with student athletes, their families, and friends: scheduling, creating incentives, boosting confidence, creating positive adult and peer role models, and encouraging students to develop future aspirations (DeMeulenaere, 2010).

Given Bandura's (1977) contention that self-efficacy assessments must be tailored to the activity at hand, it is critical to examine how this idea has been implemented during such activities. Given that volleyball has been one of the fastest rising sports and physical activities in China, the researcher decided to put the focus of this study on the said sport.

It has been suggested that the dynamism of this sport modality forces athletes to constantly adapt to the new realities and train for better performance on the court because the International Volleyball Federation views volleyball as a competitive sport requiring high physical and technical performance (FIVB, 2017). It is crucial to look at how these features have been investigated in the research. Finding out whether characteristics (physical, technical, tactical, or psychological) have been incorporated into the items of instruments created to measure self-efficacy in volleyball research is particularly crucial.

Machado et al. (2014) found that self-efficacy beliefs in volleyball were related to specific technical foundations, such as service in volleyball, without adequately elaborating on how these aspects were evaluated, in earlier studies exploring the instruments used to measure self-efficacy related to sports performance. Even though some of these research had the goal of analyzing technical, tactical, physical, and psychological components, they did not provide enough insight into the self-efficacy technique utilized to gauge self-efficacy beliefs.

In order to find out how self-efficacy has been assessed in relation to sporting mindset as fostered by volleyball and what indicators and features have been taken into account in the instruments used to assess this construct, this research was conducted. This research looks into the positive impact of sports mindset training practices on cognitive and non-cognitive aspects of achievement. It expounds on the impacts caused by the aforementioned training regimes and put into the spotlight how these effects are produced.

Background of the Study. The global rise in adolescent obesity, largely attributed to a lack of physical activity, is a significant health concern, particularly in China, where less than 30% of school-aged children engage in adequate daily exercise. Despite longstanding advocacy for school-based physical activities, such as curricular physical education, concerns about academic time loss have led to a decline in these programs. However, research indicates that physical

activity can improve cognitive function and academic performance by enhancing brain plasticity and connectivity. While traditional physical education focuses on endurance and strength, newer approaches emphasize cognitive enrichment through motor learning and group cooperation, which can bolster attention, focus, and inhibitory control-skills essential for academic success.

This research aims to explore the impact of the sports mindset on volleyball players' performance and academic achievements, asserting that sports and academics are complementary rather than mutually exclusive. Exploring how resilience, focus, and confidence influence individual and team outcomes, the study seeks to provide a deeper understanding of the interplay between psychological factors and performance efficacy. The goal is to inform practical strategies that enhance the athletic and academic experiences, supporting the holistic development of student-athletes, hence, it is assumed that a strong sports mindset can promote self-efficacy and overall excellence in both sports and academic endeavors.

Statement of the Problem. This study aims to investigate the impact of sports mindset training on students' physical and mental well-being, alongside its practicality, with a focus on enhancing their academic efficacy. Looking into the interplay between mindset training in sports and broader aspects of student development, such as stress management, emotional regulation, and self-confidence, the research seeks to elucidate how these interventions can positively influence students' overall well-being and academic performance. Additionally, analyzing the feasibility and sustainability of implementing mindset training programs within educational settings, the study aims to provide insights into effective strategies for integrating these practices into schools to support students' holistic development and academic success.

To address this issue, the researcher would like to provide answers to the following questions:

- What is the profile of the respondents:
  - Age
  - Sex
  - Year level
  - Training Frequency
- What is the assessment of student volleyball players on their academic efficacy based on:
  - Scheduling
  - Creating incentives
  - Boosting confidence
  - Creation of positive role models
  - Development of future aspirations
- Is there a significant difference in the respondents' assessment of their academic efficacy if their profiles are to be considered?
- What is the assessment of student volleyball players on the impact of sporting mindset to their level of academic efficacy based on:
  - Cognition
  - Confidence
  - Stability
- Is there a significant difference in the assessment of student volleyball players on the impact of sporting mindset to their level of academic efficacy if their profiles are to be considered?
- Is there a significant relationship in the assessment of student volleyball players on their academic efficacy and the impact of sporting mindset to their level of academic efficacy?
- What insights about sports mindset can be can be drawn from qualitative responses?
- Based on the findings of the study, what program can be established to device a policy that would efficiently foster academic self-efficacy of student volleyball players?

Significance of the Study. The study, with respect to its variables and focus, would be beneficial to the following groups/individuals:

Students. The research gives students idea on the benefits of engagement to such physical activities and sports, as well as their respective trainings such as that of volleyball.

Faculty. Increased interest among students would mean more participation in classes and training sessions.

University. Policy makers, designers and developers in universities can benefit from the findings in this study, which provide the data about the effectiveness of sports mindset training on their academic performance.

Future Researchers. This study provides some important practical insights into the potential of sporting mindset training in improving students' academic performance. This study also provides a valuable contribution to the corpus of the topic, namely on the state of physical education and development in the collegiate level.

Scope and Delimitation of the Study. The researcher specifically conducted the study in the college department of Chongqing Normal University, Southwest University, Chongqing Business University, Southwest University of Political Science and Law, Chongqing University of Posts and Telecommunications, Sichuan Foreign Studies University and Chongqing Medical University. There are about 459 volleyball athletes in total that the study looked into as respondents, hence, 459 questionnaires are expected to be completely filled up and retrieved. There are also 14 coaches who were given their respective questionnaires for the qualitative aspect of the study.

This study discussed the effectiveness of sports mindset training in students' academic performance. The researcher took into consideration variables such as age, sex and college year level. Since the study is limited only to sports mindset training among volleyball players, it does not explore any personalities out of the aforementioned descriptions. Hence, the sole perspective only comes from the perspective of volleyball players who are also students at the same time, and not any other athlete from another sporting event.

2. Methodology

This study employed a quantitative descriptive-comparative-correlational approach to examine the factors affecting the quality of college music professional talent training. The research design was structured to gather numerical data through surveys, questionnaires, and statistical analysis, providing a systematic method for comparing groups and exploring existing differences and correlations. The survey instrument was a structured questionnaire, distributed to participants to collect primary data efficiently.

The research was conducted across seven universities in Chongqing, China: Chongqing Normal University, Southwest University, Chongqing Technology and Business University, Southwest University of Political Science and Law, Chongqing University of Posts and Telecommunications, Sichuan International Studies University, and Chongqing

Medical University. These institutions were chosen due to their diverse academic offerings and relevance to the study's focus on music professional training. Each university has a rich history and a broad range of academic disciplines, contributing to a comprehensive understanding of the training environment for music professionals.

Participants included volleyball players from the seven universities, along with their coaches and assistant coaches. Total enumeration sampling was employed, involving all 459 volleyball players and 14 coaches, ensuring comprehensive data collection. The researcher-developed survey questionnaire consisted of two major parts: the profile of the respondents and the impact of sporting mindset training on academic efficacy. Responses were recorded using a four-point Likert scale, allowing for detailed analysis. Data collection involved obtaining informed consent, ensuring confidentiality, and conducting the survey personally for accurate collation. Descriptive and inferential statistics, including frequency counts, weighted means, t-tests, and Pearson's correlation, were used for data analysis, ensuring robust and reliable results. Ethical considerations were carefully followed, including informed consent, privacy, and minimizing potential risks to participants.

3. Results

Table 1. Demographic Profile of the Respondents

Demographic Profile	Categories	Frequency	Percentage
Age	16-19 years old	190	41.4%
	20-22 years old	206	44.9%
	23-25 years old	63	13.7%
	Total	459	100.0%
Sex	Male	245	53.4%
	Female	214	46.6%
	Total	459	100.0%
Year Level	First Year	143	31.2%
	Second Year	105	22.9%
	Third Year	148	32.2%
	Fourth Year	63	13.7%
	Total	459	100.0%
Training Frequency	1-2 times a week	110	24.0%
	3-4 times a week	229	49.9%
	5-6 times a week	61	13.3%
	More than 6 times a week	59	12.9%
	Total	459	100.0%

Table 1 presents the demographic profile of the respondents in the survey. Out of 459 total participants, the majority fall within the age range of 20-22 years old, representing 44.9% of the respondents, followed by the 16-19 age group with a 41.4% representation, and the 23-25 age group being the smallest at 13.7%. In terms of gender distribution, males constitute a slight majority at 53.4%, while females account for 46.6%. Examining the year level, the largest group is third-year students at 32.2%, with first-year students close behind at 31.2%. Second-year students make up 22.9%, and fourth-year students are the fewest at 13.7%. When looking at training frequency, the most common response is 3-4 times a week, with nearly half of the participants, 49.9%, selecting this option. Those who train 1-2 times a week comprise 24.0% of the survey population, followed by those training 5-6 times a week at 13.3%, and a nearly equal number, 12.9%, train more than 6 times a week. The varied age range and balanced gender distribution of respondents support Bandura's concept of self-efficacy as a universal trait that is not confined by demographic characteristics (Bandura, 2001).

Table 2. Level of Academic Efficacy

Indicators	Mean	SD	Rank	Verbal Description/ Interpretation
Scheduling	3.20	0.55	4	Agree/ True of Me
Creating Incentives	3.23	0.55	3	Agree/ True of Me
Boosting Confidence	3.25	0.57	2	Agree/ True of Me
Creation of Positive Role Models	3.18	0.57	5	Agree/ True of Me
Development of Future Aspirations	3.26	0.54	1	Agree/ True of Me
Academic Efficacy	3.22	0.51	-	Agree/ True of Me

Scale: 1-1.50: Strongly Disagree/Not True of Me; 1.51-2.50: Disagree/Slightly True of Me; 2.51-3.50: Agree/True of Me; 3.51-4.00: Strongly Agree/Very True of Me

The mean scores across all categories indicate a level of agreement characterized as "Agree/True of Me." The highest mean score is for "Development of Future Aspirations" at 3.26 with a standard deviation of 0.54, placing it at the top rank. This underscores the respondents' strong belief in the importance of having clear future goals for academic success. "Boosting Confidence" is ranked second with a mean of 3.25 and a standard deviation of 0.57, reflecting the significance of self-assurance in the academic environment.

"Creating Incentives" follows closely with a mean score of 3.23 and a standard deviation of 0.55, ranked third, suggesting that the students value the role of rewards and goals in their academic pursuits. Scheduling is recognized with a mean score of 3.20 and a standard deviation of 0.55, ranked fourth, indicating a slightly lower yet still important role in the respondents' academic efficacy. "Creation of Positive Role Models" has the lowest mean score at 3.18 with a standard deviation of 0.57, ranked fifth, which might imply a slightly lesser emphasis on this aspect compared to others, though it still falls within the range of agreement.

Collectively, the overall category of "Academic Efficacy" holds a mean score of 3.22 and a standard deviation of 0.51, signifying a strong agreement among the respondents on the efficacy of the evaluated strategies in their academic life. This table suggests that while all the listed factors contribute to academic efficacy, "Development of Future Aspirations" stands out as the most influential. The general agreement across various academic efficacy factors underscores a positive relationship between the sports mindset and academic self-concept, a concept that is supported by the notion of self-efficacy (Bandura, 2001).

Table 3 examines the difference in academic efficacy based on the demographic profile of the respondents, utilizing statistical tests to evaluate significance. Across different age groups, the mean scores range from 3.17 to 3.27, indicating a slight variation in perceived academic efficacy. The statistical value (F=0.97) and a p-value of 0.55 suggest that the

differences in academic efficacy between age groups are not statistically significant, leading to the acceptance of the null hypothesis (H0) that there is no significant difference due to age.

Table 3. Difference in Academic Efficacy Based on Demographic Profile

Profile	Categories	Mean	SD	Stat. Value	P-value	Decision
Age	16-19 years old	3.17	0.58	F= 0.97	0.55	Not significant/ Accept H_0
	20-22 years old	3.27	0.42			
	23-25 years old	3.23	0.59			
Sex	Male	3.26	0.52	t= 1.65	0.10	Not significant/ Accept H_0
	Female	3.18	0.50			
Year Level	First Year	3.21	0.55	F= 1.22	0.13	Not significant/ Accept H_0
	Second Year	3.19	0.56			
	Third Year	3.23	0.46			
	Fourth Year	3.29	0.47			
Training Frequency	1-2 times a week	3.23	0.45	F= 1.02	0.44	Not significant/ Accept H_0
	3-4 times a week	3.24	0.53			
	5-6 times a week	3.18	0.50			
	More than 6 times a week	3.21	0.57			

In terms of sex, males have a slightly higher mean score (3.26) compared to females (3.18), with respective standard deviations of 0.52 and 0.50. The t-value of 1.65 with a p-value of 0.10 also results in a decision to accept the null hypothesis, indicating no significant difference in academic efficacy between male and female respondents.

When examining year levels, the mean scores fluctuate slightly, with fourth-year students reporting the highest mean of 3.29 and second-year students the lowest at 3.19. However, the F-value of 1.22 and a p-value of 0.13 lead to a conclusion of no significant difference among different year levels.

Lastly, training frequency does not seem to significantly affect academic efficacy either. The means are closely grouped, with those training 3-4 times a week having the highest mean score of 3.24 and those training 5-6 times a week having the lowest at 3.18. The F-value is 1.02 with a p-value of 0.44, supporting the acceptance of the null hypothesis.

The table indicates that there are no statistically significant differences in academic efficacy based on the demographic factors of age, sex, year level, and training frequency among the respondents. The absence of significant differences based on demographics aligns with studies that find self-efficacy to be a broad construct affecting individuals beyond the scope of age or gender (Wang, 2011; Chen, 2007).

Table 4. Level of Sporting Mindset

Indicators	Mean	SD	Rank	Verbal Description/ Interpretation
Cognition	3.20	0.56	3	Agree/ True of Me
Confidence	3.25	0.54	1	Agree/ True of Me
Stability	3.21	0.56	2	Agree/ True of Me
Sporting Mindset	3.22	0.53	-	Agree/ True of Me

Scale: 1-1.50: Strongly Disagree/Not True of Me; 1.51-2.50: Disagree/Slightly True of Me; 2.51-3.50: Agree/True of Me; 3.51-4.00: Strongly Agree/Very True of Me.

Table 4 compiles the overall level of sporting mindset as perceived by the respondents, based on the mean scores of different indicators such as cognition, confidence, and stability. Confidence is ranked the highest with a mean score of 3.25 and a standard deviation of 0.54, indicating that the respondents feel most aligned with the qualities of self-reliance and assertiveness, which are critical components of a sporting mindset. Stability follows closely with a mean score of 3.21 and a standard deviation of 0.56, ranking second. This suggests that respondents also highly value emotional and psychological stability, which includes maintaining composure and a positive outlook, especially in challenging situations. Cognition has a mean score of 3.20 with a standard deviation of 0.56, placing it third. This reflects an agreement that the cognitive skills such as problem-solving, application of knowledge, and quick thinking are important, but slightly less so than confidence and stability. The overall category of Sporting Mindset has a mean score of 3.22 and a standard deviation of 0.53, aligning with the individual scores of the indicators. This mean score indicates a general agreement that the respondents perceive these qualities as true for themselves, and it encapsulates their collective acknowledgment of a strong sporting mindset.

The data from this table underline the importance of these three key components-confidence, stability, and cognition-in contributing to the respondents' sporting mindset, with confidence being the most strongly agreed upon aspect. The positive perceptions of a sporting mindset among participants correspond with the findings of Wes et al. that a positive self-efficacy is correlated with better sports performance (Sun, 2018).

Table 5 explores the differences in sporting mindset based on various demographic profiles, using statistical values and p-values to determine significance.

For age, the mean scores are fairly close, ranging from 3.18 for the 16-19 years old category to 3.26 for the 20-22 years old group. The F-statistic is 1.07 with a p-value of 0.35, which suggests that there are no statistically significant differences in the sporting mindset across the age groups, leading to the acceptance of the null hypothesis (H0).

Table 5. Difference in Sporting Mindset Based on Demographic Profile

Profile	Categories	Mean	SD	Stat. Value	P-value	Decision
Age	16-19 years old	3.18	0.58	F= 1.07	0.35	Not significant/ Accept H_0
	20-22 years old	3.26	0.44			
	23-25 years old	3.23	0.60			
Sex	Male	3.25	0.53	t= 1.31	0.19	Not significant/ Accept H_0
	Female	3.19	0.52			
Year Level	First Year	3.22	0.55	F= 1.17	0.22	Not significant/ Accept H_0
	Second Year	3.15	0.56			
	Third Year	3.24	0.48			
	Fourth Year	3.30	0.50			
Training Frequency	1-2 times a week	3.22	0.45	F= 1.21	0.18	Not significant/ Accept H_0
	3-4 times a week	3.24	0.54			
	5-6 times a week	3.18	0.50			
	More than 6 times a week	3.19	0.61			

When comparing by sex, males have a mean score of 3.25, slightly higher than females with a mean of 3.19. However, with a t-value of 1.31 and a p-value of 0.19, these differences are not considered statistically significant, and the null hypothesis is again accepted.

Differences in sporting mindset across year levels show a slightly wider range but remain statistically insignificant. Fourth-year students have the highest mean score of 3.30, and second-year students have the lowest with 3.15. An F-value of 1.17 and a p-value of 0.22 support the acceptance of the null hypothesis, indicating no significant differences among year levels.

Lastly, the sporting mindset across different training frequencies shows mean scores from 3.22 (1-2 times a week) to 3.24 (3-4 times a week). The F-statistic of 1.21 and a p-value of 0.18 indicate no significant difference based on how often the respondents train, and the null hypothesis is accepted.

The said results, hence, suggests that the sporting mindset is relatively consistent across the demographics of age, sex, year level, and training frequency among the respondents, with no statistically significant differences observed. The lack of significant demographic differences in sporting mindset is in line with the literature that suggests a sports mindset is beneficial to all student-athletes, regardless of background (Wang, 2011; Chen, 2007).

Table 6. Relationship of Academic Efficacy and Sporting Mindset

		Scheduling	**Creating Incentives**	**Boosting Confidence**	**Creation of Positive Role Models**	**Development of Future Aspirations**	**Academic Efficacy**
Cognition	Pearson r	0.81	0.84	0.85	0.82	0.83	0.89
	p-value	0.00	0.00	0.00	0.00	0.00	0.00
Confidence	Pearson r	0.79	0.83	0.84	0.80	0.85	0.88
	p-value	0.00	0.00	0.00	0.00	0.00	0.00
Stability	Pearson r	0.81	0.85	0.83	0.82	0.83	0.89
	p-value	0.00	0.00	0.00	0.00	0.00	0.00
Sporting Mindset	Pearson r	0.85	0.88	0.88	0.86	0.88	0.93
	p-value	0.00	0.00	0.00	0.00	0.00	0.00

Table 6 illustrates the relationship between academic efficacy and various components of a sporting mindset, providing a detailed analysis of the correlations and their statistical significance.

The table begins by examining the cognition aspect of academic efficacy, showing strong positive correlations with all components of a sporting mindset. The Pearson correlation coefficients (r) range from 0.81 to 0.89, with p-values of 0.00 across the board, indicating highly significant relationships. This suggests that better scheduling, creating incentives, boosting confidence, creating positive role models, and developing future aspirations are all strongly linked to improved cognitive aspects of academic efficacy.

Next, the table highlights the confidence aspect of academic efficacy, which also shows robust positive correlations with the sporting mindset components. The Pearson correlation coefficients here range from 0.79 to 0.88, again with p-values of 0.00. This implies that the aforementioned strategies significantly enhance students' confidence, contributing to their academic efficacy.

The stability aspect of academic efficacy is then analyzed, showing Pearson correlation coefficients between 0.81 and 0.89 with the components of a sporting mindset, all with p-values of 0.00. This indicates a stable relationship between sporting mindset strategies and students' academic stability, reinforcing the importance of these strategies in maintaining consistent academic performance.

Finally, the table presents the overall relationship between the sporting mindset and academic efficacy, with Pearson correlation coefficients ranging from 0.85 to 0.93. The p-values for these correlations are also 0.00, underscoring the highly significant and strong association between a positive sporting mindset and overall academic efficacy. This comprehensive analysis highlights the critical role of sporting mindset strategies in enhancing various dimensions of academic efficacy.

In practical terms, this means that as the sporting mindset of respondents increases, their academic efficacy is also likely to increase, and vice versa. The very strong correlation suggests that the two constructs may influence each other to a great extent. The very strong positive correlation between academic efficacy and sporting mindset lends empirical support to the theory that self-beliefs in one's abilities-enhanced through sports-positively influence academic success (Bandura, 2001; Fan, 2012).

The thematic analysis of discussions revealed three key themes related to the interplay between mindset, sports, and academic performance.

The first theme highlights the significant influence of mindset on performance outcomes, whether in academics or sports. Participants expressed beliefs that a positive mindset contributes to success, with statements emphasizing the importance of a positive attitude in both academic and athletic endeavors. There's also a recognition of the reciprocal relationship between mindset and grades, suggesting that improvements in one area can positively impact the other.

The second theme focuses on the role of sports in personal development, emphasizing how engagement in sports activities contributes to confidence-building, stress relief, and the development of strategic thinking skills. Participants noted that participation in sports not only enhances physical fitness but also provides valuable lessons applicable to academic settings, such as mindset adjustment and study techniques.

The third theme underscores the importance of balancing sports and academics, acknowledging that both domains offer unique benefits and challenges. Participants emphasized the need to strike a balance between the two and highlighted the transferable skills cultivated through sports, such as resilience and determination, which positively impact academic and personal lives. Additionally, regular exercise was associated with increased energy and efficiency for learning, suggesting a holistic approach to improving academic performance.

4. Discussion

The conclusion drawn from the study of collegiate student volleyball players in China presents several insightful conclusions that underscore the intertwined nature of academic and athletic domains in student-athletes' lives.

Firstly, the study revealed a balanced demographic profile with a slight male dominance, and the predominant age group lies within the 20-22 years range. Most participants are actively engaged in regular training sessions, indicating a commitment to their sport.

The investigation into academic efficacy revealed that the student-athletes possess a strong sense of personal management in terms of scheduling, incentivization, confidence-building, role modeling, and aspiring towards future goals. Notably, the strategies of staying ahead of schedule and ensuring adequate breaks were paramount for them, aligning with the time-management skills often honed through sports. The data reflected that these student-athletes place a high value on the development of future aspirations, which is the most influential factor in their academic efficacy.

The concept of a sporting mindset-encompassing cognition, confidence, and stability-was robust among the respondents, with confidence emerging as the most crucial element. This suggests that the confidence gained through sports is likely translatable to other areas of the student-athletes' lives, including academics.

A key finding was the absence of significant demographic differences impacting both academic efficacy and sporting mindset. This universality suggests that regardless of age, sex, year level, or training frequency, the student-athletes share a common perception of their academic and sporting capabilities.

The pivotal insight from this study is the strong positive correlation between academic efficacy, the independent variable, and sporting mindset. This suggests that the disciplines, time management, and psychological resilience nurtured through academic endeavors might significantly benefit athletic performance. This strong linkage implies that enhancing academic skills and efficacies may also bolster the qualities essential for sporting success.

In sum, the findings of this research suggest that academic efficacy contributes significantly to the sporting mindset of collegiate volleyball players. It supports the notion that academic development programs for student-athletes could be beneficial beyond the classroom, potentially improving their performance in sports. This interconnection should encourage educational institutions to recognize and foster the academic growth of student-athletes, understanding its broader impact on their overall development and performance in sports.

Based on the results of the study that indicated significant differences in physical activity based on demographic profiles such as sex and grade, and considering the non-significant age-related findings, here are three generic recommendations that could be applicable to similar contexts or further studies:

Enhanced Physical Activity Programs for Females: Given the significant difference in physical activity levels between males and females, educational institutions should consider implementing tailored physical activity programs that specifically encourage and support female participation. These programs could include a variety of fitness activities that appeal to different interests, ensuring they are inclusive and accessible. Efforts should be made to address any barriers that females might face in participating in physical activity, such as social stigmas or lack of facilities.

Targeted Interventions by Grade Level: The results indicate variations in physical activity levels across different grade levels, with older students participating more. Schools should design grade-specific interventions that aim to increase engagement in physical activities among younger students. This could involve integrating more dynamic and interactive physical education classes that evolve to match the developmental stages and interests of students as they progress through grades. Additionally, introducing inter-grade competitions and challenges might motivate younger students by providing clear activity goals and rewards.

Continuous Monitoring and Evaluation: Since the study shows varying levels of physical activity across different demographic groups, it would be beneficial for schools or related organizations to implement a system of continuous monitoring and evaluation of their physical activity programs. This could involve regular assessments of student participation and activity levels, satisfaction surveys, and an analysis of the potential improvements or changes needed in the programs. The data collected can help in refining the programs to better meet the needs of all demographic groups, thereby enhancing overall effectiveness.

In addition, a comprehensive program named "ACE: Athletes' Cognitive Excellence" is recommended for collegiate student volleyball players in China. This program

aims to enhance academic efficacy in student-athletes, thereby, improving their sporting mindset and overall performance in both domains.

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