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Physical Education Environment on University Students' Self-Efficacy

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Abstract
This study explores the impact of the physical education (PE) environment on university students' self-efficacy, focusing on key factors such as teacher support, facility quality, peer influence, and curriculum structure. Based on a quantitative analysis of 300 students, findings reveal a positive correlation between supportive PE environments and heightened self-efficacy, especially when social support is strong. The results highlight the importance of well-structured PE programs in enhancing student engagement and psychological well-being. However, limitations include reliance on self-reported data and a cross-sectional design. Recommendations suggest improved resources and instructor development to support student growth.

Keywords: Physical Education, Self-Efficacy, PE Environment, Higher Education

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1.0 Introduction

1.1 Background

Physical education (PE) plays a pivotal role in promoting holistic development among university students, encompassing physical health, psychological well-being, and social skills. A critical component influencing these outcomes is self-efficacy—the belief in one's capabilities to execute actions required to manage prospective situations. High self-efficacy in PE contexts has been linked to increased participation, persistence in physical activities, and overall academic motivation (Oliveira et al., 2021).

The environment in which PE is conducted significantly impacts students' self-efficacy. Key environmental factors include teacher support, quality of facilities, peer influence, and curriculum structure. Positive connections between teachers and students can boost students' self-esteem and encourage them to participate in physical activities (Zhang et al., 2022). Similarly, well-maintained facilities provide a conducive setting for learning and practicing skills, thereby boosting self-efficacy (Brown et al., 2024). Positive peer influence fosters a collaborative atmosphere, encouraging students to participate actively (Zhao et al., 2023). A well-structured curriculum that aligns with students' interests and skill levels further supports the development of self-efficacy (Wang et al., 2022).

1.2 Problem Statement

Despite the recognized importance of these factors, there is a paucity of research examining their combined effect on university students' self-efficacy within PE settings. Most existing studies have focused on individual elements in isolation, leaving a gap in understanding the holistic impact of the PE environment. Addressing this gap is crucial, as university students are at a developmental stage where fostering self-efficacy can lead to lifelong engagement in physical activity and overall well-being.

1.3 Research Aim

This study aims to explore the relationship between the PE environment and self-efficacy among university students, focusing on the combined influence of teacher support, facility quality, peer dynamics, and curriculum structure. By employing a quantitative approach with a sample of 300 students, this research seeks to provide comprehensive insights into how these environmental factors collectively contribute to enhancing self-efficacy. The findings are expected to inform the development of more effective PE programs that support student engagement and psychological health. The objectives of this study are: (1) To examine the relationship between the PE environment and university students' self-efficacy. (2)To identify the contributions of teacher support, facility quality, peer influence, and curriculum structure to self-efficacy.

2.0 Literature Review

A concept derived from Bandura's social cognitive theory, self-efficacy is the conviction that one can achieve in specific situations (Bandura, 1997). Within the context of physical education (PE), self-efficacy is a critical determinant of student engagement, participation, and psychological well-being. The PE environment—including teacher support, facility quality, peer influence, and curriculum structure—plays a crucial part in forming students' self-efficacy.

2.1 Construction of references

Self-efficacy is the conviction that one can carry out the actions required to achieve particular performance goals, plays a crucial role in educational settings, particularly within physical education (PE) programs (Yu, 2024). A supportive PE environment can significantly enhance students' self-efficacy, leading to increased participation and improved psychological well-being. This literature review examines the impact of key environmental factors—teacher support, facility quality, peer influence, and curriculum structure—on university students' self-efficacy in PE contexts.

2.2 Teacher Support

The role of teacher support in fostering student self-efficacy has been extensively studied. Teachers who provide encouragement, constructive feedback, and create an inclusive learning environment can positively influence students' confidence in their abilities (Affuso et al., 2023). A study by Trigueros et al. (2022) found that perceived teacher support was a significant predictor of students' self-efficacy in PE settings, highlighting the importance of teacher-student interactions in promoting positive educational outcomes.

2.3 Facility Quality

The quality of physical education facilities is another critical factor affecting students' self-efficacy. Well-maintained and adequately equipped facilities provide a conducive environment for learning and practicing physical skills, thereby enhancing students' confidence in their abilities (Gordon et al., 2023). Research indicates that students who have access to high-quality PE facilities are more likely to engage in physical activities and develop higher self-efficacy levels (Deng et al., 2023).

2.4 Peer Influence

Peer relationships within PE classes can significantly impact students' self-efficacy. Positive peer interactions, such as encouragement and collaborative learning, can enhance students' confidence and motivation to participate in physical activities (Zhang et al.,2024). Conversely, negative peer behaviors, such as bullying or exclusion, can diminish self-efficacy and deter participation. A study by Cairney et al. (2023) demonstrated that peer support was positively correlated with students' self-efficacy in PE, emphasizing the need for fostering supportive peer environments.

2.5 Curriculum Structure

The structure and content of the PE curriculum also play a vital role in shaping students' self-efficacy. Curricula that are well-organized, inclusive, and tailored to meet students' interests and skill levels can promote engagement and confidence (Zhao et al., 2023). Wang et al. (2022) found that a curriculum aligned with students' needs and preferences significantly enhanced their self-efficacy in PE settings.

2.6 Integrated Impact of Environmental Factors

While individual factors such as teacher support, facility quality, peer influence, and curriculum structure independently contribute to self-efficacy, their combined impact offers a holistic perspective. Studies suggest that these factors are interdependent and collectively shape the overall PE experience, which in turn influences self-efficacy (Ryan, 2017). For instance, a supportive teacher can mitigate the negative effects of inadequate facilities, while positive peer dynamics can enhance engagement regardless of curriculum limitations.

3.0 Methodology

This section details the research design, participants, sampling procedures, data collection methods, instruments, and data analysis techniques employed in the study to investigate the impact of the physical education (PE) environment on university students' self-efficacy.

3.1 Research Design

This study employed a quantitative design with a cross-sectional survey methodology. This design was selected to facilitate the measurement of relationships between the PE environment and self-efficacy across multiple variables at a single point in time (Creswell & Creswell, 2017). The survey approach enabled the efficient collection of data from a large sample, ensuring the reliability and generalizability of the results. The research framework was driven by two primary research questions: (1) What is the relationship between the overall PE environment and university students' self-efficacy? (2) How do specific dimensions of the PE environment—teacher support, facility quality, peer influence, and curriculum structure—impact self-efficacy?

3.2 Participants

The study involved 312 university students enrolled in various undergraduate programs across two universities in Beihai city, Guangxi province. Participants ranged in age from 19 to 21, with a mean age of 20.2 years (SD = 0.7). Both male (53.3%) and female (46.7%) students participated in the study, ensuring gender representation. Inclusion criteria required participants to have attended at least one semester of physical education classes. Students with physical disabilities or conditions preventing PE participation were excluded to ensure homogeneity in the sample.

3.3 Sampling Procedures

A stratified random sample technique was utilized to guarantee representation of students across different academic disciplines and year levels. The strata were based on university, program, and year of study, with proportional representation from each group. This sampling method minimized selection bias and ensured diversity within the sample (Etikan & Bala, 2017).

3.4 Instruments

To address the research questions effectively, the study employed a Self-Efficacy Scale for Physical Education (SEPE) adapted from Bandura (2006). This instrument was selected to assess university students' confidence in their ability to perform and succeed in tasks related to their physical education (PE) environment. A five-point Likert scale was employed to collect responses, ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"), where greater self-efficacy was indicated by higher scores.

The self-efficacy scale consisted of 20 items designed to capture students' perceptions of their self-efficacy in relation to the PE environment. The items were structured to evaluate the following aspects: (1)Teacher Support: Students' confidence in their ability to excel when supported by PE instructors. (2)Facility Quality: Perceived influence of PE facilities on their capability to perform physical activities effectively. (3)Peer Influence: The impact of peer collaboration and interactions on their self-efficacy. (4)Curriculum Structure: Students' belief in their ability to meet curriculum expectations and achieve learning outcomes.

3.5 Reliability and Validity

The SEPE conducted a pilot study involving 30 students from a different university in Beihai to evaluate its clarity, cultural relevance, and reliability. Minor modifications to the phrasing of items were implemented to guarantee appropriateness within the given context. The final scale's reliability, gauged through Cronbach' s alpha, reached 0.89, signifying outstanding internal consistency (Taber, 2018). The content validity was established via expert reviews conducted by PE educators and psychologists knowledgeable about self-efficacy theory. Construct validity was further substantiated through exploratory factor analysis, which confirmed that the scale items aligned with the dimensions under scrutiny.

3.6 Data Collection

The data collection process took place in the middle of the semester to ensure that students had adequate exposure to the physical education environment. To maximize participation and ensure accessibility, a blend of online and in-class surveys was employed. Participants were provided with a comprehensive overview of the study's objectives and were required to sign informed consent forms. Strict measures were taken to maintain anonymity and confidentiality, thereby fostering honest and open responses. The surveys encompassed inquiries evaluating the PE environment (including teacher support, facility quality, peer influence, and curriculum structure) and the adapted self-efficacy scale. Each survey took roughly 15-20 minutes to complete. To ensure data integrity, stringent checks for incomplete or inconsistent responses were conducted, which led to the exclusion of 12 surveys. Consequently, 300 valid responses remained.

3.7 Data Analysis

Quantitative analysis was conducted utilizing IBM SPSS Statistics 27, following a systematic approach to examine the relationship between the physical education (PE) environment and students' self-efficacy. Descriptive statistics were calculated to summarize the demographic characteristics of the sample and the distribution of self-efficacy scores. Pearson's correlation coefficient was used to explore the associations between self-efficacy and

components of the PE environment, such as teacher support, facility quality, peer influence, and curriculum structure. A hierarchical multiple regression was conducted to determine the predictive power of PE environmental factors on students' self-efficacy. Independent variables were entered in blocks to assess their incremental contributions. Additionally, multiple regression analysis was employed to ascertain the degree to which various aspects of the physical education environment predicted self-efficacy levels.

3.8 Ethical Considerations

The goal of the study was explained to the participants, and their agreement was acquired prior to their involvement. Data were anonymized and securely stored in compliance with institutional guidelines.

4.0 Findings

This study investigated the relationship between the physical education (PE) environment and university students' self-efficacy using a 20-item scale that evaluated four key dimensions: Teacher Support, Facility Quality, Peer Influence, and Curriculum Structure. A sample of 300 students, aged 19 to 21, from two universities in Beihai provided data for analysis. The findings, based on descriptive, correlation, and regression analyses, as well as gender comparisons, are presented below.

4.1 Descriptive Statistics

Descriptive analysis of the data revealed varying levels of perceived self-efficacy across the four dimensions. The overall results suggest that students perceive Teacher Support and Curriculum Structure as the most positively impactful aspects of their PE environment, while Peer Influence scores were relatively lower. Table 1 provides a summary of the descriptive statistics. Teacher Support had the highest mean score (M = 4.15, SD = 0.72), indicating that students feel confident when instructors provide guidance, encouragement, and feedback. Curriculum Structure also scored high (M = 4.03, SD = 0.77), reflecting students' belief in their ability to meet learning outcomes and curriculum requirements. Facility Quality scored moderately high (M = 3.92, SD = 0.80), suggesting that resource availability is perceived as generally sufficient, though with room for improvement. Peer Influence had the lowest score (M = 3.79, SD = 0.84), indicating a less pronounced impact of social interactions on self-efficacy.

Table 1. Descriptive Statistics for Self-Efficacy Dimensions

Dimension	Mean (M)	Standard Deviation (SD)	Interpretation
Teacher Support	5.23	0.92	High
Facility Quality	5.40	0.89	Moderate to High
Peer Influence	5.18	0.84	Moderate
Curriculum Structure	5.01	0.91	High

4.2 Correlation Analysis

To explore the relationships between the four dimensions of the PE environment and overall self-efficacy, Pearson correlation analysis was conducted. The results, shown in Table 2, reveal significant positive correlations between all dimensions and self-efficacy, with Teacher Support demonstrating the strongest relationship.

Teacher Support exhibited the strongest positive correlation ($r = 0.67$, $p < 0.01$), indicating that supportive teaching significantly boosts students' confidence. Curriculum Structure also showed a strong correlation ($r = 0.63$, $p < 0.01$), emphasizing the role of well-designed curricula in enhancing self-efficacy. Facility Quality had a moderate but significant correlation ($r = 0.58$, $p < 0.01$), suggesting the importance of high-quality resources. Peer Influence showed the weakest correlation ($r = 0.42$, $p < 0.05$), indicating that while peer dynamics are important, they are less influential compared to other dimensions.

Table 2. Correlation Analysis Between Dimensions and Self-Efficacy.

Dimension	Correlation Coefficient (r)	Significance (p-value)
Teacher Support	0.67	<0.01
Facility Quality	0.58	<0.01
Peer Influence	0.42	<0.05
Curriculum Structure	0.63	<0.01

4.3 Regression Analysis

The study employed multiple regression analysis to determine the predictors of self-efficacy in the PE environment. The predictors included teacher support, facility quality, peer influence and curriculum structure. The results are summarized in Table 3.

Teacher Support was the most significant predictor ($\beta = 0.49$, $p < 0.01$), highlighting its pivotal role in shaping students' self-efficacy. Curriculum Structure also contributed significantly ($\beta = 0.37$, $p < 0.01$), underscoring the importance of course organization and learning objectives. Facility Quality and Peer Influence were less impactful but still significant predictors ($\beta = 0.23$, $p < 0.05$ and $\beta = 0.19$, $p < 0.05$, respectively).

Table 3. Regression Analysis Results

Dimension	Standardized Coefficient (β)	Significance (p-value)
Teacher Support	0.49	<0.01
Facility Quality	0.23	<0.01
Peer Influence	0.19	<0.05
Curriculum Structure	0.37	<0.01

4.4 Gender Differences

Gender differences in self-efficacy were investigated using an independent samples t-test. The results showed that male students reported substantially higher levels of self-efficacy than female students. The t-test results ($t= 3.05$, $p < 0.01$) showed a difference that is statistically significant, with male students perceiving themselves as more confident in their physical abilities than female students. These findings highlight the need for gender-sensitive interventions in PE to address disparities and promote equitable outcomes.

Table 4. Gender Differences in Self-Efficacy

Dimension	Mean (M)	Standard Deviation (SD)
Male	4.12	0.74
Female	3.86	0.81

4.5 Summary of Findings

The findings demonstrate that Teacher Support and Curriculum Structure are critical components of the PE environment that significantly enhance students' self-efficacy. Facility Quality and Peer Influence, while still important, showed comparatively weaker effects. Gender differences further highlight the need for tailored strategies to foster confidence among all students.

5.0 Discussion

This study sought to investigate the impact of the physical education environment on self-efficacy among university students. The findings provide valuable insights into the role of various environmental factors in shaping students' confidence in physical education contexts.

5.1 Teacher Support and Self-Efficacy

Teacher Support emerged as the most influential factor, highlighting the critical role of instructors in fostering students' confidence. This result corroborates studies by Zhu et al. (2020), which demonstrated that supportive teaching practices significantly enhance students' self-efficacy. Teachers who provide personalized feedback and encouragement create a nurturing environment that enables students to overcome challenges.

5.2 Facility Quality and Self-Efficacy

Facility Quality was moderately correlated with self-efficacy, underscoring the importance of physical infrastructure in PE. Well-equipped and accessible facilities can provide students with the resources needed to practice and develop their physical skills, thereby enhancing their confidence (Miller & Glass, 2020). This finding is particularly relevant in the context of university campuses, where the availability of modern facilities can directly influence students' participation in physical education.

5.3 Peer Influence and Self-Efficacy

Peer Influence, though significant, showed the weakest relationship with self-efficacy. This finding suggests that while social interactions play a role in shaping confidence, their impact may be mediated by other factors, such as teacher interventions and curriculum structure (Li et al., 2019). Encouraging collaborative activities and fostering positive peer dynamics could further enhance this dimension.

5.4 Curriculum Structure and Goal Alignment
The significance of Curriculum Structure indicates that students' confidence is bolstered when PE programs are well-organized and aligned with achievable goals. Structured curricula provide clarity and set realistic expectations, contributing to students' belief in their ability to meet academic and physical challenges.

5.5 Gender Differences in Self-Efficacy
The observed gender differences in self-efficacy align with prior research indicating that male students often report higher levels of self-efficacy in physical education (Hwang & Kim, 2018). These differences may stem from cultural and societal factors that shape gendered attitudes toward physical activity and sports. Future research could explore how gender stereotypes and expectations influence self-efficacy in physical education.

6.0 Conclusion& Recommendations

6.1 Conclusion
This study demonstrates the critical role of the PE environment in shaping university students' self-efficacy. Teacher Support emerged as the most influential factor, while Facility Quality, Peer Influence, and Curriculum Structure also contributed significantly. The findings highlight the necessity of focused measures to alleviate gender inequality and improve the overall PE environment.

6.2 Recommendations
Based on the results of the investigation, the following suggestions are proposed to enhance the physical education environment and its impact on students' self-efficacy:
(1) Strengthen Teacher Training
Professional development programs for physical education teachers should prioritize strategies that cultivate supportive learning environments. These programs should emphasize the delivery of constructive feedback, consistent encouragement, and individualized attention, particularly targeting students who exhibit lower levels of self-efficacy.
(2) Enhance Facility Resources
High-quality, modernized facilities equipped with appropriate resources can improve student engagement and participation. Universities should allocate budgets to upgrade infrastructure, ensuring safe, accessible, and appealing spaces that inspire physical activity among students.
(3) Foster Peer Collaboration
Universities should promote collaborative activities that encourage positive peer interactions within physical education settings. Initiatives such as team-based sports, cooperative fitness challenges, and group projects can create supportive social networks. Such activities not only enhance students' sense of belonging but also provide opportunities for social modeling, which can further strengthen self-efficacy through observation and mutual encouragement.
(4) Address Gender-Specific Needs
Targeted interventions are necessary to reduce gender disparities in self-efficacy observed in physical education contexts. Female-focused programs, such as women-centered fitness workshops, mentorship initiatives, and confidence-building activities, can provide tailored support to female students. These efforts should be complemented by institutional policies aimed at challenging gender stereotypes and promoting an inclusive and equitable environment for all students.

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Paper Contribution to Related Field of Study

This study contributes to the fields of educational psychology and physical education by highlighting the multidimensional impact of the PE environment on self-efficacy. The findings provide actionable insights for educators and policymakers to enhance teaching practices, infrastructure, and curriculum design. By addressing gender disparities and fostering inclusive environments, this research lays the groundwork for future studies aimed at improving educational outcomes in physical education contexts.

References

Affuso, G., Zannone, A., Esposito, C., Pannone, M., Miranda, M. C., ... & Bacchini, D. (2023). The effects of teacher support, parental monitoring, motivation and self-efficacy on academic performance over time. *European Journal of Psychology of Education, 38*(1), 1-23.

Bandura, A., & Wessels, S. (1997). *Self-efficacy* (pp. 4-6). Cambridge: Cambridge University Press.

Bandura, A. (2006). Guide for constructing self-efficacy scales. *Self-efficacy beliefs of adolescents, 5*(1), 307-337.

Brown, C. E., Richardson, K., Halil-Pizzirani, B., Atkins, L., Yücel, M., & Segrave, R. A. (2024). Key influences on university students' physical activity: a systematic review using the Theoretical Domains Framework and the COM-B model of human behaviour. *BMC Public Health, 24*(1), 418.

Cairney, J., Kwan, M., & Faulkner, G. (2023). Physical literacy and self-efficacy in university students: Exploring the role of physical environments. *International Journal of Behavioral Medicine, 30*(2), 120-135.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches.* Sage publications.

Deng, J., Liu, Y., Chen, R., & Wang, Y. (2023). The relationship between physical activity and life satisfaction among university students in China: the mediating role of self-efficacy and resilience. *Behavioral Sciences, 13*(11), 889.

Etikan, I., & Bala, K. (2017). Sampling and sampling methods. *Biometrics & Biostatistics International Journal, 5*(6), 00149.

Gordon, D., Blundell, C., Mills, R., & Bourke, T. (2023). Teacher self-efficacy and reform: a systematic literature review. *The Australian Educational Researcher, 50*(3), 801-821.

Hwang, N., & Kim, S. (2018). **Social modeling and gender differences in physical education**. *Journal of Health and Sports Science, 7*(2), 123-135.

Li, X., Wang, Z., & Zhang, Y. (2019). Peer influence and self-efficacy in physical education: A social learning perspective. *Psychology of Sport and Exercise, 45*, 101581.

Miller, J., & Glass, K. (2020). The impact of resources on physical activity in educational settings. *International Journal of Physical Education Research, 15*(4), 345-362.

Oliveira, V. P. D., Nascimento, J. V. D., Salles, W. D. N., Santos, P. C. C. D., Benites, L. C., & Folle, A. (2021). Self-efficacy of university students in physical education: Association with personal, academic and professional characteristics. *Journal of Physical Education, 32,* e3215.

Ryan, R. M. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press.

Taber, K. S. (2018). The use of Cronbach's alpha when develo** and reporting research instruments in science education. *Research in science education, 48,* 1273-1296.

Trigueros, R., Aguilar-Parra, J. M., & Cangas, A. J. (2022). Teacher support and self-efficacy in physical education: A path model. *Frontiers in Psychology, 13,* 894729.

Wang, K., Li, Y., Zhang, T., & Luo, J. (2022). The relationship among college students' physical exercise, self-efficacy, emotional intelligence, and subjective well-being. *International journal of environmental research and public health, 19*(18), 11596.

Yu, H., Zhu, T., Tian, J., Zhang, G., Wang, P., Chen, J., & Shen, L. (2024). Physical activity and self-efficacy in college students: the mediating role of grit and the moderating role of gender. *PeerJ, 12,* e17422.

Zhang, T., Zhao, J., & Shen, B. (2024). The influence of perceived teacher and peer support on student engagement in physical education of Chinese middle school students: mediating role of academic self-efficacy and positive emotions. *Current Psychology, 43*(12), 10776-10785.

Zhang, Y., Hasibagen, & Zhang, C. (2022). The influence of social support on the physical exercise behavior of college students: The mediating role of self-efficacy. *Frontiers in Psychology, 13,* 1037518.

Zhao, Y. S., Ma, Q. S., Li, X. Y., Guo, K. L., & Chao, L. (2023). The relationship between exercise motivation and exercise behavior in college students: The chain-mediated role of exercise climate and exercise self-efficacy. *Frontiers in Psychology, 14,* 1130654.

Zhu, Y., Sun, W., & Li, T. (2020). Teacher support and self-efficacy in physical education: Implications for student performance. *Journal of Teaching in Physical Education, 39*(1), 77-90.