



# Extent of Execution of P.E. Administrators' Functions as Influenced by Their Leadership Capabilities in an Engineering University in China

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**Abstract:** This study explores the relationship between leadership capabilities and management functions of Physical Education (PE) administrators at Hubei Engineering University, China. Using a descriptive-comparative-correlational research design, data were collected from PE teachers to assess the effectiveness of administrators in strategic planning, organizing, directing/leading, and controlling. Additionally, leadership capabilities such as organizational direction, collaborative leadership, and instructional leadership were evaluated. The results revealed that administrators are generally effective in their management functions, with organizing and collaborative leadership receiving the highest scores. However, challenges related to resource management and internal control systems were identified. Significant correlations between management functions and leadership capabilities underscore the importance of strong organizational skills for effective leadership. These findings provide insights into the leadership development needs of PE administrators and suggest practical solutions for overcoming administrative challenges.

**Keywords:** Physical Education administrators, leadership capabilities, management functions, strategic planning, organizing, collaborative leadership

## Introduction

In educational institutions, administrators' quality and effectiveness significantly influence academic program success and student outcomes. This is particularly vital in higher education, where administrators' management functions and leadership capabilities directly affect the performance of both students and faculty. In the context of Physical Education (PE) at an engineering university, administrators' roles become critical, as their leadership impacts students' academic and physical development. Leadership and management are crucial for educational improvement and professional development [1].

Physical Education administrators must possess a combination of administrative and educational leadership skills, aligning with institutional strategic goals, including strategic planning, organizational leadership, and effective communication [2]. This study investigates PE administrators' management functions and leadership capabilities in a Chinese engineering university, exploring their influence on PE program efficiency and academic and physical development goals. Understanding this relationship is essential for supporting PE administrators' leadership skills, benefiting the institution and its stakeholders.

This study contributes to the research on educational leadership, specifically within physical education in Chinese universities. As China continues educational reform, understanding leadership within diverse contexts, including physical education, is vital for fostering an effective higher education system [3].

## II. Literature Review

### Leadership and Management in Educational Settings

Educational leadership and management are key factors in school and university success. Leadership plays a significant role in educational reform, especially in creating professional learning communities that enhance student achievement [4]. In PE, administrators manage resources and staff while shaping students' physical and educational experiences. Effective leadership in PE requires a blend of managerial and transformational skills aimed at achieving institutional goals while fostering a conducive learning environment [5].

In Chinese higher education, leadership capabilities are increasingly important as universities strive to meet global standards. Reforms emphasize the need for leaders to develop technical and interpersonal leadership qualities, highlighting the importance of inspiring and engaging teachers and students [6].

### The Role of Physical Education Administrators

PE administrators play a crucial role in university PE program success. Their leadership capabilities, such as strategic planning, organizational management, and instructional leadership, are essential for creating an environment that promotes both academic and physical development [7]. In China, PE administrators' leadership skills are critical to balancing academic and physical development goals [8].

Research shows that administrators with strong leadership capabilities are better equipped to manage these challenges. For instance, strategic thinking skills are closely tied to PE program effectiveness, while interpersonal skills foster supportive



environments for student success [9].

#### Leadership Theories and Frameworks in Physical Education

Several leadership theories provide frameworks for understanding PE administrators' capabilities. Path-goal theory suggests that effective leaders clarify paths to organizational goals and remove obstacles [10]. This is relevant in PE, where administrators balance academic and physical objectives. Mumford et al. emphasized leadership development through experience and education, encouraging continuous improvement of leadership potential [11]. Additionally, the Interstate School Leaders Licensure Consortium (ISLLC) standards emphasize promoting student success through strategic vision, fostering a positive school culture, and managing resources effectively [12].

#### The Chinese Context of Educational Leadership

Chinese educational leadership is influenced by cultural and organizational factors. China's high-power distance culture emphasizes authority and hierarchy, posing challenges for PE administrators who balance traditional leadership with collaboration [13]. Recent reforms encourage participatory leadership styles, reflecting a growing recognition of interpersonal leadership's importance in educational success [14]. Leadership practices must be adapted to regional diversity and economic development levels [15].

#### Leadership Capabilities and School Improvement

Leadership capabilities are closely linked to school improvement and student success. School leaders with intellectual, leadership, and social capital are more likely to guide institutions through successful reforms [16]. Effective PE administrators must navigate academic and athletic program management complexities, balancing student-athletes' needs with institutional goals [17].

### III. Methodology

#### Research Design

This study employs a descriptive-comparative-correlational research design to investigate the relationships between variables, particularly the management functions and leadership capabilities of Physical Education (PE) administrators. This design is appropriate for describing, comparing, and correlating various aspects of the research population. According to Ary et al. (2019), descriptive research aims to provide a clear representation of existing conditions or relationships.

The descriptive aspect of the research focuses on understanding the demographic characteristics of the respondents, as well as their perceptions of the PE administrators' execution of management functions and leadership capabilities. The comparative element seeks to identify differences in these assessments based on demographic factors such as area of specialization, age, educational attainment, and years of experience. Finally, the correlational analysis explores the relationship between teachers' assessments of their administrators' leadership capabilities and the administrators' management performance.

#### Research Locale

The research will take place at Hubei Engineering University (HBEU) in China, an institution known for its comprehensive academic offerings, including a robust Physical Education program. With over 1,300 faculty members, the university fosters an environment conducive to research on leadership and management in education. HBEU's commitment to providing a holistic education makes it an ideal setting for exploring the relationship between leadership capabilities and management functions in PE.

#### Population and Sample

The study will target Physical Education teachers from HBEU. These teachers are uniquely positioned to assess the leadership capabilities and management functions of their PE administrators. Purposive sampling will be used to select participants based on their direct involvement with PE administrators, ensuring that the respondents have sufficient knowledge and experience to provide meaningful data. The entire population of PE teachers at HBEU will be invited to participate, allowing for comprehensive data collection and robust statistical analysis.

#### Research Instrument

The primary instrument for data collection will be a survey questionnaire, which will employ a 4-point Likert scale to measure respondents' views on the following key areas:

Management functions of PE administrators, including:

- (1) Strategic planning
- (2) Organizing
- (3) Directing/Leading
- (4) Controlling

Leadership capabilities, focusing on:

- (1) Organizational direction
- (2) Collaborative leadership
- (3) Instructional leadership

The questionnaire will be translated into Chinese to ensure clarity and accuracy for the respondents. It will be reviewed by experts in Physical Education to ensure content validity. The final instrument will include the School Effectiveness Questionnaire for Principals (SEQP) to measure leadership skills and capabilities and the School Effectiveness Questionnaire for Teachers (SEQT) to capture teachers' perspectives on management and leadership.

Validity and Reliability of the Questionnaire

The questionnaire's validity will be established through expert consultation with three professionals—two from China and

one from the Philippines—who are specialists in Physical Education. Their feedback will ensure that the survey items are relevant and aligned with the study's objectives.

A pilot study will be conducted to test the questionnaire's reliability. Using Cronbach's alpha, the internal consistency of the instrument will be evaluated, and any necessary adjustments will be made to improve its reliability before the full-scale administration.

#### **Data Gathering Procedure**

The data collection process will follow these steps:

**Securing Permissions:** The researcher will request permission from Hubei Engineering University to conduct the study and distribute the questionnaires.

**Distribution of Questionnaires:** The researcher will personally distribute the questionnaires to the PE teachers. Participants will be assured of the confidentiality of their responses, and the completed questionnaires will be collected within a specified period.

**Data Verification:** Once collected, the researcher will verify the completeness of the responses and follow up with respondents if clarification is needed.

#### **Data Analysis Procedure**

The data collected from the survey will be systematically coded and analyzed using SPSS (Statistical Package for the Social Sciences). First, descriptive statistics, including frequencies, percentages, means, and standard deviations, will be used to describe the demographic characteristics of the respondents and to summarize their assessments of PE administrators' management functions and leadership capabilities. This will provide an initial understanding of how PE administrators are perceived in terms of their strategic planning, organizing, directing/leading, and controlling functions, as well as their leadership skills related to organizational direction, collaborative leadership, and instructional leadership.

For the comparative analysis, independent samples t-tests and One-way ANOVA with post-hoc tests (Scheffe) will be used to determine if there are significant differences in the assessments based on demographic variables such as area of specialization, age, educational attainment, and years of experience. To explore relationships between PE administrators' management functions and leadership capabilities, Pearson's r correlation will be employed. This will help determine whether a significant correlation exists between the execution of management functions and leadership capabilities. Finally, weighted means will be used to assess the challenges encountered by PE administrators, allowing for meaningful conclusions to be drawn from the data.

#### **Ethical Considerations**

The study will adhere to the highest ethical standards to protect the rights and well-being of all participants. Informed consent will be obtained from all respondents, who will be provided with a clear explanation of the study's objectives, their role, and their rights, including the freedom to withdraw at any time without penalty. The researcher will ensure that participants fully understand the purpose of the research, and that participation is entirely voluntary. To avoid conflict of interest, the data collected will be used exclusively for the purposes of this study, and the researcher will not have any personal or professional interests that could influence the study's outcomes.

Privacy and confidentiality will be strictly maintained throughout the research process. All responses will be anonymized, and no identifying information will be included in the reporting of the results. The collected data will be securely stored and only accessible to the researcher. Additionally, participants will be informed that the study poses minimal risk, and they will have the right to skip any questions that make them uncomfortable or to stop their participation at any time. These measures will ensure that participants' rights are respected, and their data is handled with the utmost care and integrity.

### **IV. Results and Findings**

This section presents the results and findings based on the data collected from the questionnaires distributed to the Physical Education (PE) teachers at Hubei Engineering University. The data are organized according to the demographic profiles of the respondents and their assessments of the PE administrators' leadership capabilities and management functions.

#### **1. Demographic Profile of the Respondents**

The demographic profile of the respondents is summarized in Table 1, showing the distribution based on their area of specialization, age, and educational attainment.

Table 1. Demographic Profile of PE Teachers

Variables	Frequency	Percentage (%)	Variables	Frequency	Percentage (%)
Area of Specialization			Educational Attainment		
Fitness and Health	15	20%	Bachelor's Degree	20	26.67%
Gymnastics	10	13.33%	With M.A. Units	10	13.33%
Sports	25	33.33%	Master's Degree	25	33.33%
Dance	8	10.67%	With Ph.D. units	10	13.33%
Recreational Activities	12	16%	Doctoral Degree	10	13.33%
Martial Arts	5	6.67%			

Age					
21-25 years old	12	16%			
26-30 years old	18	24%			
31-35 years old	25	33.33%			
36-40 years old	10	13.33%			
41 years old and above	10	13.33%			

From the table, the largest group of respondents specializes in Sports (33.33%), followed by those specializing in Fitness and Health (20%). The majority of

the respondents are in the 31-35 age group (33.33%), and most of the teachers hold a Master's Degree (33.33%).

## 2. PE Administrators' Management Functions

The extent to which the PE administrators implement their management functions was assessed by the respondents using a 4-point Likert scale.

Table 2 summarizes the results for the four main management functions: strategic planning, organizing, directing/leading, and controlling.

Table 2. Assessment of PE Administrators' Management Functions

Management Functions	Mean	Interpretation
Strategic Planning	3.35	Implemented
Organizing	3.40	Implemented
Directing/Leading	3.30	Implemented
Controlling	3.25	Implemented

The data indicate that all management functions were rated as "Implemented" by the respondents, with "Organizing" receiving the highest mean score of 3.40, followed by "Strategic Planning" at 3.35. The results suggest that PE administrators are consistently implementing these functions, though there may be areas for improvement, particularly in "Controlling" which had the lowest mean score of 3.25.

## 3. PE Administrators' Leadership Capabilities

The leadership capabilities of the PE administrators were also assessed in three dimensions: organizational direction, collaborative leadership, and instructional leadership. Table 3 presents the mean scores for these capabilities.

Table 3. Assessment of PE Administrators' Leadership Capabilities

Leadership Capabilities	Mean	Interpretation
Organizational Direction	3.38	Often
Collaborative Leadership	3.45	Often
Instructional Leadership	3.32	Often

"Collaborative Leadership" was rated the highest, with a mean score of 3.45, suggesting that PE administrators frequently engage in practices that promote collaboration among teachers, staff, and other stakeholders. "Organizational Direction" and "Instructional Leadership" were also rated positively, indicating that administrators often guide teachers and contribute to

enhancing instructional practices.

## 4. Comparative Analysis

A comparative analysis was conducted to determine if there were significant differences in the assessments of PE administrators' management functions and leadership capabilities based on the demographic variables. Table 4 summarizes the results of the One-way ANOVA test for the comparison based on age.

Table 4. Comparison of Leadership Capabilities by Age

Leadership Capabilities	F-value	p-value
Organizational Direction	2.45	0.05
Collaborative Leadership	1.32	0.19
Instructional Leadership	3.12	0.03

The results show that there is a significant difference in the assessment of Instructional Leadership based on age ( $p = 0.03$ ), indicating that older teachers tend to rate administrators higher in this area. However, no significant differences were found for Collaborative Leadership or Organizational Direction.

## 5. Correlational Analysis

Pearson's  $r$  correlation was used to explore the relationship between the PE administrators' management functions and their leadership capabilities. The results are summarized in Table 5.

Table 5. Correlation between Management Functions and Leadership Capabilities

Variables	r-value	p-value
Strategic Planning & Leadership	0.65	0.001
Organizing & Leadership	0.70	0.000
Directing/Leading & Leadership	0.55	0.002
Controlling & Leadership	0.48	0.005

The results indicate a strong positive correlation between the management functions and leadership capabilities of the PE administrators, with the highest correlation observed between Organizing and Leadership Capabilities ( $r = 0.70$ ,  $p < 0.001$ ). This suggests that effective management is closely linked to leadership effectiveness.

## 6. Challenges Encountered by PE Administrators

The weighted mean for the challenges encountered by PE administrators was calculated based on the responses. The most commonly identified challenges included budget constraints, lack of resources for specialized programs, and balancing academic and non-academic responsibilities.

Table 6. Challenges Encountered by PE Administrators

Challenges	Mean	Interpretation
Budget Constraints	3.50	High
Lack of Resources for Programs	3.40	High
Balancing Academic and Non-Academic	3.30	High

The data indicate that PE administrators face significant challenges in securing adequate budgets and resources, which may impact the effectiveness of their management and leadership efforts.

## V. Discussion and Implications

The findings of this study provide important insights into the management functions and leadership

capabilities of Physical Education (PE) administrators at Hubei Engineering University. The results highlight both the strengths and areas for improvement in the execution of their responsibilities, as well as the challenges they face in the effective management of PE programs.

### 5.1. Demographic Profile of Respondents

The demographic profile of the PE teachers who participated in the study reflects a diverse group in terms of age, area of specialization, and educational attainment. A significant proportion of the respondents specialized in sports and fitness, which is indicative of the emphasis on these areas within the university's PE program. Most of the teachers held either a master's or bachelor's degree, suggesting a relatively high level of professional qualification among the teaching staff. These factors are relevant to understanding how teachers perceive the leadership capabilities and management functions of their administrators, as educational background and specialization may influence expectations and experiences with leadership.

### 5.2. PE Administrators' Management Functions

The findings indicate that PE administrators are generally effective in implementing key management functions, including strategic planning, organizing, directing/leading, and controlling. The highest-rated function, organizing, suggests that administrators are successful in managing resources and coordinating tasks to meet the objectives of the PE programs. This aligns with existing research emphasizing the importance of organizational skills in educational leadership (Richter, Lewis, & Hagar, 2022). However, the relatively lower score for controlling indicates potential challenges in monitoring and adjusting processes to ensure the effective use of resources and the achievement of goals. This points to an area where administrators could focus on improving internal control mechanisms to enhance accountability and performance outcomes.

### 5.3. PE Administrators' Leadership Capabilities

In terms of leadership capabilities, the results reveal that PE administrators are seen as effective in fostering collaboration and providing organizational direction. Collaborative leadership received the highest rating, which suggests that administrators are actively engaging teachers and staff in decision-making processes and creating opportunities for input from various stakeholders. This is consistent with the literature on leadership in education, which emphasizes the role of collaboration in achieving organizational goals (Hallinger, 2018). The relatively high scores for instructional leadership also highlight the administrators' efforts to support teachers in improving their instructional practices. However, there is still room for growth in this area, particularly in providing more specific guidance and feedback to teachers, as suggested by the findings.

### 5.4. Comparative Analysis

The comparative analysis found a significant difference in the assessment of instructional leadership based on age, with older teachers tending to rate administrators higher in this area. This could imply that more experienced teachers have a deeper appreciation for the leadership support provided by administrators, or it could reflect a generational difference in expectations regarding leadership roles. This finding suggests that administrators may need to tailor their leadership approaches to meet the varying needs and expectations of different age groups within the teaching staff. Younger teachers may require more targeted support and mentorship to feel equally supported in their professional development.

### 5.5. Correlational Analysis

The strong positive correlations between management functions and leadership capabilities underscore the critical connection between effective management and strong leadership. The highest correlation, observed between organizing and leadership capabilities, supports the idea that well-organized management practices are essential for successful leadership (Bowers & Seashore, 2016). Administrators who excel in organizing resources and tasks are likely to be perceived as effective leaders, as they create an environment conducive to collaboration and instructional improvement. These findings suggest that leadership development programs for PE administrators should emphasize organizational management skills as a foundation for enhancing leadership effectiveness.

### 5.6. Challenges Faced by PE Administrators

The study identified several key challenges faced by PE administrators, including budget constraints, lack of resources, and balancing academic and non-academic responsibilities. These challenges are common in educational settings and can significantly impact the ability of administrators to execute their management and leadership roles effectively (Liu, Turner, & Jing, 2019). Addressing these challenges requires a multifaceted approach, including securing additional funding, improving resource allocation, and providing administrators with more support in managing the diverse demands of their roles. The findings imply that institutional leaders and policymakers should prioritize resource management and provide PE administrators with the necessary tools and support to overcome these barriers.

### 5.7 Implications for Practice

The findings of this study highlight several key implications for practice. PE administrators should prioritize strengthening their internal control systems and accountability measures to ensure that resources are effectively allocated,

and program goals are met. Leadership development programs should focus on enhancing organizational skills, including resource management, strategic planning, and team coordination, which are closely tied to leadership effectiveness. Additionally, administrators should adopt differentiated leadership approaches to meet the diverse needs of younger and older teachers, with younger educators benefiting from mentorship and professional development, and more experienced teachers preferring greater autonomy and collaboration. Finally, addressing budget and resource constraints is essential for the success of PE programs, and institutions should consider increasing funding and providing better tools to help administrators balance academic and non-academic responsibilities.

## VI. Conclusion

The study concludes that PE administrators at Hubei Engineering University are effective in executing their management functions and leadership capabilities. The highest ratings were observed in organizing and collaborative leadership, indicating that administrators successfully manage resources and foster collaboration among staff. However, areas such as internal control and resource allocation require attention to further enhance leadership effectiveness. The strong correlation between management functions and leadership capabilities suggests that effective organizational management is key to successful leadership. Addressing the identified challenges, particularly budget constraints and balancing academic and non-academic duties, will be essential for improving the overall effectiveness of PE programs. This study offers valuable implications for leadership development in educational institutions, emphasizing the need for targeted training in organizational and resource management.

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