

Principal's Transformational Leadership for Teachers Professional Development in Wushu Education: A Theoretical Framework

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Abstract: *In the context of sustainable development, the Chinese government recognizes the dual value of Wushu education in physical development and traditional cultural heritage. This study constructs a theoretical framework around the impact of principals' transformational leadership on the professional development of Wushu teachers. It combines transformational leadership theory, adult learning theory, social learning theory, self-directed theory, and path-goal theory. In the form of a questionnaire survey of Wushu teachers, the study collected data in a quantitative way and used Li Chao-ping's Transformational Leadership Questionnaire and Structural Equation Modeling to validate the relationship between principals' leadership behaviors and teachers' professional growth. The purpose of this study was to propose teacher development strategies to promote the popularization of Wushu education and to provide a new perspective on the application of transformational leadership theory. The study found a theoretical link between principals' transformational leadership and Wushu teachers' professional development. The theoretical framework constructed in this study can provide theoretical references and practical suggestions for the popularization and policy optimization of Wushu education.*

Keywords: Transformational Leadership, Teachers' Professional Development, Wushu Education, Theoretical Framework

1. Introduction

The professional development of teachers is key to the advancement of education globally, as it is directly related to the quality of teaching and learning and the academic outcomes of students (Kang, 2021). Through continuous professional development, teachers are able to keep abreast of the latest educational theories, technologies and pedagogical methods, thereby improving classroom effectiveness and adapting to a rapidly changing global environment (Wilson Heenan et al., 2023). In addition, professional development promotes teachers' self-confidence and job satisfaction, thereby reducing teacher turnover and building a more stable education system (Wilson Heenan et al., 2023).

Teacher professional development has become a focus of attention in China in recent years as the country seeks to modernize its education system and improve the quality of teaching in all subjects. Among the various subjects taught, Wushu education occupies a unique position because of its cultural heritage significance and physical training function (Y. Zhang & Wang,

2008). The professional development of Wushu teachers is both an educational and cultural necessity. As the “physical bearers” of traditional Chinese culture, they play a key historical role in preserving and passing on this valuable heritage.

However, current government efforts to support the professional growth of Wushu teachers remain limited. Therefore, it is necessary to explore the influencing factors that contribute to this phenomenon and the corresponding measures to address this issue (Yang, 2016). Previous scholars have suggested that principals' leadership behaviors and styles are one of the key factors influencing the dynamics of teachers' professional development. Despite their extensive empirical research on principals' leadership behaviors, styles, and strategies, the unique challenges faced by Wushu teachers have not been adequately addressed.

Transformational leadership has been studied extensively in business settings and is receiving increasing attention in educational research. For example, transformational leadership principals emphasize responding to the individual needs of teachers' professional development by creating an innovative and supportive teacher development environment. However, as Wushu education is a unique topic in the Chinese education system, few scholars have focused on the impact of principals' transformational leadership behaviors on Wushu teachers' professional development (Qiao & Zhu, 2020).

This study aimed to develop a theoretical framework to elucidate the impact of principals' transformational leadership on Wushu teachers' professional development. By addressing this critical gap, this study provides new theoretical perspectives on the professional development of Wushu teachers and offers new insights into principals' leadership strategies and the popularization of Wushu education.

2. Statement of the Problem

The Chinese government has long attached great importance to the improvement of teachers' professional competence and the development of students' physical fitness. Among them, the development of Wushu teachers is regarded as an important way to protect and promote China's Wushu cultural heritage (Cai, 2007). However, despite several supportive government policies, the actual pace of professional growth of Wushu teachers remains slow. Previous findings suggest that one of the reasons for this phenomenon is that Wushu teachers have encountered uneven distribution and unreasonable integration of resources in their professional development process (Guo, 2019).

As a matter of fact, in the Chinese educational context, the principal responsibility system is mainly practiced, i.e., the principal is the first person in charge of the school (Chen & Hong, 2016). Therefore, there is a direct link between the leadership behaviors of Chinese principals and the professional development of teachers, and the solution to this problem requires the active participation of principals. Among the many leadership behaviors, transformational leadership, as a leadership style that focuses on motivation and support, has been shown to be beneficial to the professional development of subordinates (Ali, 2022). However, the cultural and geographical limitations of Wushu education have resulted in few international scholars examining content related to the professional development of Wushu teachers. Meanwhile, Chinese scholars' focus on transformational leadership theory has been in the business sector, and few have applied it to the issue of teacher professional development in educational settings. Therefore, this study aimed to fill this academic gap by examining the impact of principals' transformational leadership behaviors on Wushu teachers' professional development.

Based on this, this study aims to construct a theoretical framework that reveals how principals' transformational leadership behaviors contribute to the professional development of Wushu teachers. This framework provides a new theoretical perspective on the professional development of Wushu teachers and provides a comprehensive theoretical guide for principals to implement transformational leadership behaviors.

RQ1: What are the transformational leadership behaviors of principals?

RQ2: What specific components are involved in the professional development of Wushu teachers?

RQ3: What is the theoretical relationship between principals' transformational leadership and Wushu teachers' professional development?

3. Literature Review

3.1 Transformational Leadership in Principals

Transformational leadership involves leadership behaviors such as inspiring subordinates' organizational vision, promoting subordinate innovation, and supporting subordinate growth. Specifically, transformational leaders need to serve as progressive role models within their organizations, be able to set a reasonable organizational vision for high performance, and inspire subordinates to align their personal goals with the organizational vision (Bernard M. Bass, 1997; Seltzer & Bass, 1990).

Their behaviors include Dimension 1: Idealized influence: refers to the leader's outstanding ability, moral exemplary, and charisma of infecting others in personality (Bass, 1985). Dimension 2: Inspirational motivation: Leaders have firm ideals and beliefs and show confidence and charm (Bass, 1995a). Dimension 3: Intellectual stimulation: Leaders put forward innovative ideas, emphasizing that employees should deepen their understanding of the organization based on their understanding of objective reality, encourage employees to innovate, and re-innovate from concept to working (Bass & Avolio, 1990). Dimension 4: Individualized consideration: Leaders are responsible for coaching and promoting employees and assisting employees to complete organizational tasks better (Bass et al., 1987).

Transformational leadership was introduced by Bass (1985) and emphasizes inspiring, motivating, and enabling subordinates to achieve beyond expectations. In an educational context, transformational behaviors (e.g., personalized support, inspirational motivation, and intellectual stimulation) of principals are critical to promoting teacher development. Research (Leithwood et al., 2008) emphasizes that such leadership enhances teachers' motivation to develop, reasonable integration of developmental resources, and an easily organized management environment. However, very little research has been conducted specifically on Wushu teachers. Teachers of this discipline face unique challenges of teaching cultural heritage and motor skills in Wushu. Therefore, principals, as direct leaders and hands-on managers of schools, need to understand which leadership behaviors are effective in meeting the professional development needs of Wushu teachers.

3.2 Teacher Professional Development

Under the educational background of China, the interpretation of TPD is influenced by the unique cultural, social, and political system (Ying, 2010). China has rich educational ideas and practical history, and its TPD method embodies the integration of traditional values and contemporary requirements (Trent, 2020). The key considerations in the Chinese explanation of TPD include the role of the Confucian tradition in shaping the dynamics of teachers and

students, the influence of education policy on TPD initiatives, and the emphasis on continuous PD as a means to promote educational modernization (Ying, 2010). Scholars and practitioners can gain valuable insights into the complexity of educational reform and professional learning under the rapidly changing global background by studying Chinese views on TPD.

TPD in China started late, and the research and practice of teachers' professional development are relatively weak (Z. Wang, 2013a). There are also many problems, mainly in the following five aspects: teachers' professional status, professional treatment, and professional satisfaction are not high (Chao et al., 2019); teachers' dominant position has not yet been established, and their professional autonomy is restricted (Cui, 2011); teachers' occupational stress, burnout, and psychological problems are greater (Zhao & Sun, 2024); teachers' knowledge structure is single, and their teaching ability and research ability need to be improved (Song & Rong, 2023); the teacher education (training) system is backward and can't meet the needs of teachers' professional development (Song & Hu, 2022).

The basis and premise of teachers' professional development is self-reflection and development consciousness (Sims & Fletcher-Wood, 2021). Under the touch and stimulation of self-professional development consciousness, teachers' reflection on self-teaching will be regarded as the basic element of forming personal teaching knowledge and theory, and it will be the key power source of teachers' personal professional development, and this process will run through teachers' whole teaching career (Harris et al., 2011). As a professional, a teacher must have a solid professional quality structure as a material condition to realize his development, in addition to his self-consciousness of professional development (X. Zhang et al., 2021). Professor Ye Lan believes that three main factors drive the professional development of teachers: a. the problems or key situations that teachers have to realize in the process; b. under the guidance of managers, teachers themselves attach importance to the pursuit of professional development; c. all kinds of support from off-campus resources for teacher education (Z. Wang, 2013b).

3.3 Wushu Education

There are many studies related to Wushu education, but only a few studies define the concept of Wushu education. Wushu education means not only Wushu teaching but also its research scope is wider. It means that the educatees can be educated and shaped physically, technically, morally, and personally through the process of Wushu teaching (S. Zhang, 2020). Dr. Li Long's definition of Wushu education is that Wushu educators impart or edify Wushu techniques and theories to the educates according to certain purposes to achieve a planned and purposeful activity process of influencing the Wushu educatees. This definition basically contains the connotation of "Wushu education" to be expressed in this study (L. Li, 2007).

While combing the literature, it is found that China's secondary school Wushu education thought mainly has three historical development periods. From the implementation of the case of Proposing to Promote Old Wushu in China as a Compulsory Course in Schools in 1916 to the promulgation of the National Sports Implementation Plan in 1932, the secondary school Wushu education in China completed the first stage of its birth and rapid development (1916-1940). At this stage, Wushu education in secondary schools aims to "strengthen the country and race and strengthen the national spirit." It is proposed that "schools at all levels should set up Wushu venues in sports facilities, and school physical education courses and teaching materials should include Wushu"(Lv, 2016). With the gradual popularization of the Western education system and the idea of combining Chinese and Western, the development of Wushu education in China entered the second stage bottleneck period (1940-1949). For example, in

1940, Mr. Zhang Zhijiang pointed out at the National Sports Conference that "only 10%-20% of schools offer martial arts courses through investigation and statistics of all kinds of schools at all levels in the country, and they are not regarded as the main subject" (G. Wang, 2016). After the founding of the People's Republic of China (PRC), the development of the sports field quoted the physical education system of the former Soviet Union and listed Wushu education as the lower concept of physical education (G. Wang & Qiu, 2008), which marked that Wushu education entered a stage of steady development (1949-).

By summarizing the development of Wushu education, we can find that it has always been the focus of China's education system and plays an irreplaceable role in school sports (S. Zhang, 2020). At present, the latest guiding ideology for the development of secondary school Wushu education in China is to highlight the position and role of Wushu in physical education with Chinese characteristics according to the law of students' physical and mental development, enrich teaching content, promote students' all-round development, and achieve the purpose of improving health, improving self-defense ability and cultivating and carrying forward national spirit (Chai et al., 2019).

The foregoing provides a systematic review of key concepts and theories relevant to this study, including principals' transformational leadership, teacher professional development, and Wushu education in China. The literature on related concepts was established by reviewing the leadership styles of transformational leaders, the influences on teacher professional development, and the historical process of Wushu education. However, few scholars have focused on the connectivity of these domains, and in particular, a research gap still exists in the leadership role of principals in facilitating the professional growth of Wushu teachers. The majority of scholars have focused their research efforts on the professional development of teachers in general disciplines, which still fails to address the nuanced needs of Wushu teachers. This gap highlights the need for a theoretical framework that provides a reasonable combination of transformational leadership principles and the real-world needs of Wushu teacher professional development.

By addressing these gaps, the theoretical framework proposed in this study will provide new theoretical perspectives for optimizing leadership practices and improving access to Wushu education.

4. Theoretical Framework

The theoretical foundation for this study is drawn from five well-established theories: transformational leadership theory, adult learning theory, social learning theory, self-determination theory, and path-goal theory. These theories shed light on how principals as leaders implement leadership behaviors within the context of Wushu education and the corresponding content, methods, and motivational aspects of professional development for Wushu teachers. Path-goal theory can be used as a mediator to bring the two together in a reasonable way and provide new theoretical perspectives for the further development of Wushu education.

4.1 Transformational Leadership Theory

Transformational leadership theory was proposed by Bass (1985), which suggests that leaders can motivate followers to exceed their expectations and develop leadership qualities that drive the success of an organization or institution. Prior research findings suggest that transformational leaders have four core elements. Idealized Influence: Leaders set an example

that inspires trust and admiration (Bass, 1995b; Bernard M. Bass, 1997). Inspirational Motivation: Leaders inspire and encourage followers to commit to a shared vision and collective goals (Seltzer & Bass, 1990). Intellectual Stimulation: Leaders encourage innovation and creativity by challenging assumptions and facilitating problem solving (Bernard M. Bass, 1997; Seltzer & Bass, 1990). Individualized Consideration: Leaders demonstrate empathy and provide individualized support to followers, recognizing their unique needs and desires (Bass et al., 1987).

4.2 Adult Learning Theory

A famous American psychologist, Thorndike et al. (1928), officially published his masterpiece *Adult Learning*. The birth of this book means that adult learning theory has become a brand-new research field. Adult learning theory holds that adults have more experience and more vital learning abilities than children and can better understand new things and master their cognitive structure (Thorndike et al., 1928). Adult learning is the organization and reorganization of cognitive structure, and teachers' adult learning has a far-reaching impact on students' academic performance (Terehoff, 2002). At the same time, the standards, implementation conditions, and external factors of adult learning theory provide theoretical support for principals to assist teachers in professional development.

4.3 Social Learning Theory

In the 1960s, Albert Bandura first proposed the social learning theory, which was widely recognized in psychology and later applied to education and business (Bandura & Hall, 2018). It defines human learning as an interactive process in social communication in which the factors of behavior, people's internal factors, and external environmental factors are linked and influenced by each other (Edinyang, 2016). This theory describes explicitly how individuals can strengthen their personal abilities and professional development through observation and imitation. Social learning theory can help principals to create a culture of learning and collaboration on campus, which will help teachers to understand the influence of interaction with others (including their colleagues and school leaders) and thus enhance the teachers' professional development (Bissessar, 2021).

4.4 Self-Determination Theory

Self-Determination Theory (SDT) was put forward by Deci and Ryan (1980) based on a series of studies to study the development level of human motivation. SDT means that human beings have instinctive curiosity and interest in new things, are willing to explore and learn actively, and are eager for self-development and success. This is the embodiment of internal motivation, and the behavior inspired by this motivation is also called self-determined behavior (Good et al., 2022). In order to satisfy individual autonomy needs, leaders can create a relaxed and free working atmosphere, give their subordinates multiple choices and feedback, and recognize their views and ideas. In this atmosphere, subordinates can fully reflect their sense of autonomy and freedom when completing tasks, and their participation in the work will be significantly improved (Mageau & Vallerand, 2003)

4.5 Path-Goal Theory

Path-goal theory is a crucial academic viewpoint in the theoretical system of Western leadership, and it discusses how leaders motivate their subordinates to achieve predetermined goals (House & Mitchell, 1975). In his book *Leadership Theory and Practice*, Peter G. Northouse, an American leadership scholar, analyzes this theoretical school profoundly and emphasizes the relationship between leadership style, work situation, and subordinate characteristics. According to the research of (House, 1996), leaders will have different

incentive results when adopting other leadership behaviors. The work behavior of subordinates is also partly related to their personality characteristics and the complexity of tasks.

4.6 Theoretical Framework

According to the research theme of the paper, the independent variable is transformational leadership theory, so the theoretical framework of transformational leadership theory is first displayed. Bass's explanation of transformational leadership theory mainly includes four dimensions: idealized influence, intellectual stimulation, inspirational motivation, and individualized consideration.

Secondly, the dependent variable of this paper is the Wushu teachers' professional development. As an adult group, teachers' professional development can rely on three theories: adult learning theory, social learning theory, and self-determination theory. At the same time, these three theories have different emphases on teachers' professional development.

Finally, the intervention of the Path-Goal Theory can further refine the transformational leadership of the principal and expand various obstacles in the professional development of Wushu teachers, which is conducive to the construction of the final framework. This study aims to draw a reasonable theoretical framework of transformational leadership on the Wushu teachers' professional development. The path-goal theory is set as the prerequisite, and the transformational leadership style is further refined. At the same time, the path-goal theory accurately defines the personality characteristics of Wushu teachers and divides the difficulty of the tasks they need to complete. In this way, the comprehensiveness and richness of the framework can be guaranteed. The theoretical framework is shown in Figure 1 below.

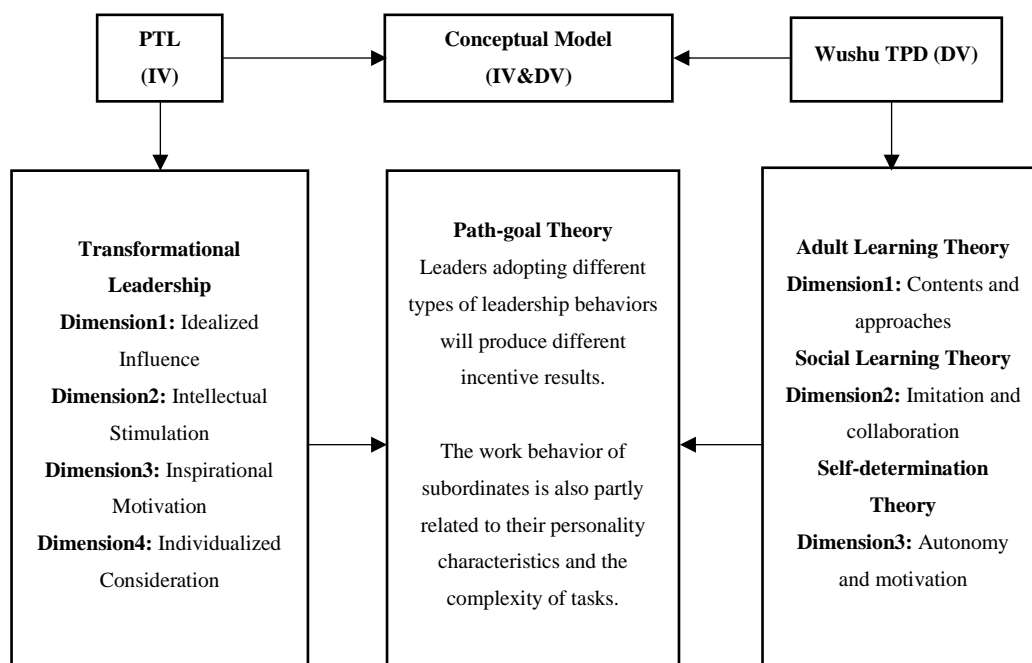


Figure 1: Theoretical Framework of this Study

5. Methodology

5.1 Population and Sampling

This study will focus on Chinese Wushu teachers from five regions of China: northern, central, eastern, western, and southern, using a stratified sampling technique. This will ensure that its

research data is representative of a diverse range of regions (Iliyasu & Etikan, 2021; Lu et al., 2023). The sampling process will take into account differences in the distribution of the number of Wushu teachers across provinces, reflecting different population densities and resource allocations. The northern and central regions of China are richer in traditional Wushu culture and possess a higher concentration of teachers than regions with a lower Wushu climate (Guo, 2019).

To ensure sufficient statistical validity and representativeness, the sample size will be calculated based on provincial data. Proportional stratified sampling will ensure adequate representation of each province (Iliyasu & Etikan, 2021; Lu et al., 2023). Provinces with smaller numbers of Wushu teachers will have smaller proportional but statistically relevant samples, while larger provinces will provide more participants. Teachers will be given a questionnaire containing questions about their perceptions of the relevance of principals' transformational leadership and their own professional development and asked to select the answer option that best represents their perspectives and experiences.

The standardized format of the questionnaire ensures consistency and comparability of data and helps to reveal patterns of attitudes and behaviours between groups (Díaz-Oreiro et al., 2019). In addition, the closed-ended questions in the questionnaire designed provide clear options to guide respondents to focus on key topics and reduce subjective bias (Manstein et al., 2023). Meanwhile, the anonymity of the questionnaire encourages respondents to express their views truthfully and improves the reliability of the data (Sharma, 2022). These advantages make the questionnaire an effective tool for collecting quantitative data in large-scale studies, laying a scientific foundation for subsequent analysis (Díaz-Oreiro et al., 2019; Manstein et al., 2023; Sharma, 2022).

5.2 Instrumentation

The questionnaire consisted of five sections. The first section of the survey asked for basic demographic information about the participants, such as age, gender, level of education, and number of years on the job. The remaining four sections focused on principals' transformational leadership behaviors, content of professional development, collaboration among colleagues, and motivation for professional development. This study adapted a questionnaire from the China Transformational Leadership Assessment Questionnaire published by Prof. Chao-Ping Li for testing principals' level of transformational leadership. It was published in the *Psychological Journal* by C. Li and Shi (2005), who identified four dimensions of transformational leadership in China, including Virtue Exemplar, Visionary Motivation, Individualized Care, and Leadership Charisma, and suggested that it could be used for scientific research at no cost. It consists of 26 questions, each of which involves a five-point scale ranging from strongly disagree to strongly agree.

5.3 Validity and Reliability

Before applying the questionnaire of this study for data collection, it needs to be rigorously tested for reliability and validity. First, the researcher invited two experts in the field of educational management to evaluate the content of the questionnaire and verify whether the presentation of each item meets the requirements of the study. Second, a small-scale pilot study is conducted. The researcher may choose a province and distribute the questionnaire to 50 local Wushu teachers. The question set and structure division of the questionnaire will be determined by recovering the corresponding results. Finally, the researcher was able to assess the validity of the questionnaire by conducting a validated factor analysis (CFA) using the lavaan module in the JAMOVI 2.6.0.0 software (Caldwell, 2022; ŞAHİN & AYBEK, 2020).

Also, the Cronbach's alpha coefficient was able to determine the reliability aspect of the questionnaire due to the fact that it is one of the most commonly used indicators for evaluating the internal consistency of questionnaires (Pallant, 2020)

5.4 Data Collection

In the Chinese context, the researcher can utilize the Questionnaire Star software for overall data collection based on the determined sampling method and sample range. Before distributing the questionnaires, the researcher needs to explain the background and purpose of the study to the participating teachers to gain the participants' right to know about the study. At the same time, it was explained to the participants that this study could bring them some material rewards and a more comprehensive understanding of professional development, and how to protect their personal privacy. Their personal information was protected through anonymization and anonymous questionnaire format. In addition, before the questionnaire was distributed, the researcher was required to go through a moral and ethical review by a professional organization and obtain a corresponding approval letter.

5.5 Data Analysis

In this study, the reliability and validity of the questionnaire content was tested using JAMOVI 2.6.0.0, and the data were statistically and analytically analyzed by means of factor analysis (Caldwell, 2022; Şahin & Aybek, 2020). First, the demographic and professional distribution of Wushu teachers was outlined to explain the general characteristics of the participants in the study. Next, correlation and regression analyses were conducted to explore the relationship between principals' transformational leadership behaviors and professional development outcomes. Then, structural equation modeling (SEM) was applied to examine in depth the direct and indirect effects of transformational leadership on the variables of collegiality, developmental motivation, and teacher motivation. Finally, each element of the framework will be tested for statistical significance to confirm its explanatory power.

6. Implications

Based on the theory of transformational leadership, this study examines how Chinese principals' transformational leadership behaviors affect teachers' professional development. Through a systematic review of the existing literature, the researcher found that there exists a gap in transformational leadership research in the field of Wushu education in China. This study provides a specific theoretical perspective and research direction to address this gap, which offers theoretical advances and practical implications for the further development of Wushu education.

6.1 Theoretical Implications

a. Expanding the application of transformational leadership theory

Transformational leadership theory is mostly applied in the generic fields of business management and education management, but there are still no scholars its application in Chinese Wushu education. By focusing on the specific leadership behaviors of principals in promoting the professional development of Wushu teachers, this study explores how transformational leadership can be adapted to a special education context that focuses on cultural transmission and skill teaching, thus enriching the scope of the theory's application and giving it a wider range of practical implications.

b. Constructing a Theoretical Model

The theoretical framework proposed in this study clarifies the theoretical foundations and dimensions of principals' transformational leadership behaviors as well as Wushu teachers' professional development. The theoretical model of this study demonstrates the specific relationship between principals' leadership behaviors (e.g., visionary motivation, personalized care) and teachers' professional development (content, form, and method). This framework may provide an analytic path for subsequent research and a theoretical guide for related fields.

6.2 Practical implications

a. Promoting the professional development of Wushu teachers

This study designed specific pathways to enhance the teaching and professional development of Wushu teachers. Through personalized care (e.g., equipment, resources) and visionary incentives (e.g., recognition, constructing developmental visions), principals are able to improve the teachers' working environment and motivate them to develop professionally, which in turn promotes pedagogical innovation and improves teaching quality.

b. Enhancing the popularization of Wushu education

With the increase in students' physical fitness and cultural education needs, the promotion of Wushu education has become an important element of education reform. The results of this study help Wushu teachers to develop systematic teaching abilities, enhance the attractiveness of the curriculum, and meet the diverse learning needs of students, thus expanding the popularization of Wushu education.

c. Scientific Guidance for Educational Policies

This study provides a theoretical basis to ensure that policy makers optimize the science of Wushu teacher training programs. The results of the study can guide education authorities to increase targeted training programs in teacher professional development, improve the performance evaluation system, and increase the efficiency of resource allocation.

d. Promoting interdisciplinary research

The study combines transformational leadership theory with pedagogical, cultural, and psychological perspectives to deepen the exploration of interdisciplinary fields. This cross-border research can provide reference samples for theoretical innovation in related fields and broaden the boundaries of Wushu education research.

7. Conclusion

The theoretical framework constructed in this study systematically explores the multilevel impact of principal leadership behaviors on Wushu teachers' professional development by focusing on transformational leadership theory and combining adult learning theory, social learning theory, self-direction theory, and path-goal theory. The framework clarifies the specific links between principals' leadership behaviors (e.g., visionary motivation, personalized care) and teachers' professional development, providing a scientific basis for understanding the application of transformational leadership in education. In addition, the framework reveals three dimensions in the professional development of Wushu teachers, filling a gap in academic research.

The theoretical framework of this study provides a guiding path for how principals can effectively support the professional development of Wushu teachers, emphasizing the synergy between material support and spiritual motivation. It extends the application of

transformational leadership theory and provides valuable theoretical references for teacher professional development and policy makers. By enhancing the professionalism and teaching quality of Wushu teachers, the framework has important practical implications for promoting the popularization and transmission of Wushu education.

Although this study is significant in the construction and application of the theoretical framework, there are still some limitations. First, sample limitations. The scope of the study focused on Wushu teachers in China, which may not be fully representative of teacher groups in other regions or disciplines, limiting the generalizability of the findings. Second, research methodology limitations. This study proposes to use quantitative research methods (e.g., questionnaires and factor analysis) for exploration, and fails to incorporate qualitative methods to explore in depth the dynamic relationship between principals' leadership behaviors and teachers' professional development. Finally, theoretical application limitations. The theoretical framework may be significant in specific cultural contexts (e.g., traditional Chinese culture and education system), but its adaptability and feasibility need to be further verified in cross-cultural studies.

This study examined the impact of principals' transformational leadership on the professional development of Wushu teachers in China, suggesting the unique needs of Wushu education in the Chinese educational context. Future research can address these gaps by expanding the sample, using mixed research methods, and cross-cultural comparisons. In addition, the framework can be used as a theoretical foundation for designing teacher training programs and educational policies, providing practical guidance for educational practitioners and policy makers. Future scholars can also validate the long-term effects of the framework in promoting the sustainable development of Wushu education through longitudinal studies to promote the deep integration of theory and practice.

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