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A Model for Developing Teacher Leadership Skills for the University Teachers in Application-Oriented Universities in Taiyuan, Shanxi Province, China

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Abstract

The key to the success of educational reform in universities is the teachers, who are the critical factor in driving school reform, realizing mutual skill enhancement among colleagues, and promoting the growth and success of university students. This study aimed to develop a model to enhance teachers' leadership skills in Application-Oriented Universities in Taiyuan, Shanxi Province, China. The main theories that comprise the conceptual framework of this study are teacher leadership and distributed leadership. This study used a mixed methods research and utilized both qualitative and quantitative research methods. Qualitative data were collected through a systematic literature review and analyzed to integrate the skills needed for teacher leadership and the factors influencing teacher leadership. A questionnaire was developed and distributed to 366 teachers in three Application-Oriented Universities in Taiyuan for quantitative data collection. The findings showed high levels of teacher leadership in the three targeted schools. At the same time, the factors that influence teacher leadership development were found to include collaboration, shared responsibility, empowerment, trust and communication, adaptive and responsive. The survey results also showed that the above five factors positively correlate with improving teachers' leadership skills. Based on these results, experts proposed and validated a model that provides three activities for Application-Oriented University teachers to enhance their teacher leadership skills.

Keywords : teacher leadership skills, Application-Oriented Universities, university teacher, model

Introduction

Teachers are a university's most valuable resource, and higher education reform ultimately depends on teachers to drive implementation, especially the advancement of teacher leadership skills. (Zhou & Guo, 2014). The key to the success of educational reform in higher education is the improvement of teachers' skills, who are the leading force in shaping the culture of higher education and promoting school improvement. It takes the involvement and action of teachers to achieve school improvement and quality teaching and learning (Cosenzav & Michael, 2015). The greatest beneficiaries of educational reform are students, who are the prerequisite and ultimate goal for the existence of schools, and teacher skills are an essential

factor in student development. Research over the years has shown that teacher leadership skills have a more pronounced impact on student academic achievement than the socioeconomic environment or family influence on students (Schott et al., 2020).

Teacher leadership originated from educational reforms in the USA in the 1980s (Katzenmeyer & Moller, 1996). The practical basis for the concept of "teacher leadership" started in the 1980s in countries around the world that focused on the professional development of teachers (Liberman, 1988). Over the past four decades, scholars have explored the epistemological issues of the nature, influences, and functional values of teacher leadership (York-Barr & Duke, 2004). It is generally accepted in the academic community that teacher leadership helps teachers see things from the perspective of the school organization rather than the dominant individual perspective. It also allows teachers to improve their teaching, research, and other work skills, mobilize through the improvement of teacher leadership skills, use their motivation, and reduce burnout and the rate of teachers leaving the profession. (Harris & Muijs, 2005).

In China, Hong Kong scholars Jinghui and Weicheng were the first to introduce the "Teacher leadership" concept in their book *teacher leadership and teacher professional development* in 2005 (Wang & Hong, 2020). Since then, research on teacher leadership in China has also become popular. From the perspective of the overall research on Chinese teachers' leadership in recent years, the research of Chinese teachers' leadership has the characteristics of a relatively late start, slow development, and more profound influence by Western leadership. Regarding research trends, Chinese teacher leadership research has focused chiefly on reviewing foreign teacher leadership research theories, international teacher leadership models and comparative studies, disciplinary perspectives on teacher leadership roles, and the relationship between teacher leadership and teacher professional development in China. Empirical research on teacher leadership is rare, and the construction of teacher leadership training models in universities is even rarer (Wang & Zhu, 2020).

According to the data published by the Ministry of Education in 2022, as of May 2022, there are 3,013 higher education institutions in China, including 1,270 undergraduate institutions. The Chinese government plans to transform more than half of the undergraduate institutions into Application-Oriented universities. The Chinese Ministry of Education defined Application-Oriented University in 2017: An Application-Oriented University is a university engaged in cultivating Application-Oriented talents at the undergraduate level or above, serving economic and social development, and studying social development and scientific and technological applications. Compared with traditional Chinese universities, Application-Oriented University has prominent new characteristics regarding overall direction, teacher construction, operation ideas, and talent cultivation goals.

This study identifies the factors that promote or impede the development of teacher leadership in higher education and creates a model for effectively enhancing teacher leadership in Application-Oriented Universities to better fulfill the leadership role of teachers. Using a teacher leadership perspective to analyze the effectiveness of teachers in Chinese Application-Oriented Universities is an attempt to localize borrowed Western ideas in China. It provides a new way of thinking about teacher leadership development in Chinese universities of application.

Research Objectives

1. To explore the teacher leadership skills of university teachers in China.
2. To identify the current practices of the teachers' leadership qualities at the Application-Oriented Universities in Taiyuan, Shanxi Province, China.
3. To find the significant factors influencing teacher leadership development in the three Application-Oriented Universities in Taiyuan, Shanxi Province, China.
4. To develop a model for teacher leadership at Application-Oriented Universities in Taiyuan, Shanxi Province, China.
5. To validate the model for developing teacher leadership at Application-Oriented Universities in Taiyuan, Shanxi Province, China.

Literature Review

Teacher leadership, as one of the core qualities of teachers, plays an essential role in the professional development of teachers and in improving the quality of school education. There is much research on the components of teacher leadership, and this section reviewed some representative perspectives.

Teacher Leadership (York-Barr & Duke, 2004)

York-Barr and Duke have systematically reviewed the literature on teacher leadership over the past two to three decades. They examined the definition and role of teacher leadership, the conditions that promote teacher leadership, and the impact of teacher leadership on schools and students. They have found that various teacher leadership studies have highlighted the importance of collaborative behaviors among teachers. Based on this literature review on teacher leadership, they proposed criteria for evaluating teacher leadership behaviors that systematically answer the question, "What do teacher leaders do?" Which provides a comprehensive picture of the behavioral dimensions of teacher leadership. Leadership is essentially a kind of influence. York-Barr and Duke viewed teacher leadership as the process by which teachers influence their colleagues, principals, and other members of the school community, either through their strengths or as a group, to enhance teaching and learning practices and ultimately, student learning and achievement, they explain what teacher leadership should do in seven dimensions (York-Barr & Duke, 2004).

Distributed Leadership Theory (Murphy, 2005)

Distributed leadership was proposed by Gibb, an American social psychologist, in the mid-20th century, later introduced into the discipline of education to address the inability of traditional school leadership research to move away from a principal role-centered focus on individual leader characteristics and leadership behaviors, which means more explicit. Some fundamental principles and characteristics associated with distributed leadership include collaboration, shared responsibility, empowerment, trust and communication, and adaptability and responsiveness. Studies have shown that high teacher engagement and collaboration are crucial to school improvement. Developing teacher leadership has positively impacted restructuring schools and bridging the gap between teachers. Schools with distributed leadership have a positive impact on teacher self-efficacy and morale. Teacher leadership is a kind of influence, self-efficacy, and morale that can enhance teachers' stress resistance, ensure their physical and mental health development, and help teachers utilize their leadership in classroom teaching, research, and other daily work (Harris & Muijs, 2005).

Murphy briefly illustrates the contrast between formal and informal teacher leadership. Formal teacher leadership is role-based Leadership, while informal teacher leadership is team-based leadership, where any teacher can assume leadership responsibilities in some form at some point. Formal teacher leadership is hierarchical, elitist, and instrumental, leading to unequal distribution of resources, a negative competitive teacher culture, and a utilitarian approach to teamwork. It allows only a few teachers to develop and is not conducive to enhancing peer interaction and creating a culture of genuine communication and collaboration. Therefore, the strong development of informal teacher leadership in universities in the future is where the trend of teacher leadership development lies, which is where this study endeavors to go.

Related Research

Transformational Leadership

This study used the two main theories mentioned above: transformational leadership, participative leadership, and parallel leadership. These three leadership theories provide some research ideas and methods for this study. Based on China's unique historical and cultural context, Chinese scholars suggested that in the Chinese cultural context, relationship-oriented transformational leadership behaviors have a more substantial effect on team performance than task-oriented transformational leadership behaviors. Relationship-oriented transformational leadership behaviors significantly impact team members' organizational citizenship behaviors (Wu & Wu, 2006). Meng conducted a survey using a revised transformational leadership questionnaire to explore whether the structural model of transformational leadership is culturally different. She found that "Li and others explored the applicability of the structural dimensions of Western transformational leadership in Chinese organizational culture by introducing the multifactor leadership behavior questionnaire (MLQ). She also found that the four-dimensional structural model of transformational leadership is appropriate for the Chinese cultural context. The results of this study indicate that the conceptual validity of transformational leadership has been initially validated in China and that the theoretical framework of transformational leadership is mainly applicable in the Chinese cultural context (Meng et al., 2013).

Participative Leadership

The rise of the quality of the work-life movement in the 1950s brought the concept of participative leadership to a high level of attention. Participative leadership encourages employees to express their ideas. This has implications for changing traditional teacher leadership perceptions and enhancing teacher leadership in Chinese Application-Oriented Universities. Participative Leadership encourages subordinates to participate in decision-making and ultimately achieve shared decision-making power between the top and bottom. This is an important feature and hallmark of participative Leadership that distinguishes it from other leadership styles. Participative Leadership transforms employees from the traditional role of decision-makers to participants by listening to and considering employees' reasonable suggestions before making decisions. The effectiveness of this leadership style in organizational management is widely recognized, especially in improving employees' psychological well-being and job performance. In China, participative leadership encourages employees to express their ideas actively.

Higher Education Quality Standards in China

Since the 1980s, Chinese higher education has explored establishing modern university education quality management standards with Chinese characteristics suitable for developing national conditions. The quality requirements for cultivating talents in higher education are regulated legally. In 2018, the Teaching Steering Committee of Higher Education Institutions of China's Ministry of Education released the National Standards for Teaching Quality of Undergraduate Professional Classes in General Higher Education Institutions. It covers all 92 undergraduate professional classes in the catalog of undergraduate professional classes in general colleges and universities. It comprises 1,049 professional foundation courses and 3,676 professional core courses in Chinese undergraduate colleges and universities. It mainly includes eight aspects, of which six items include the assessment of teachers' subject professional background and level and conditions for teacher teaching development.

Research Methodology

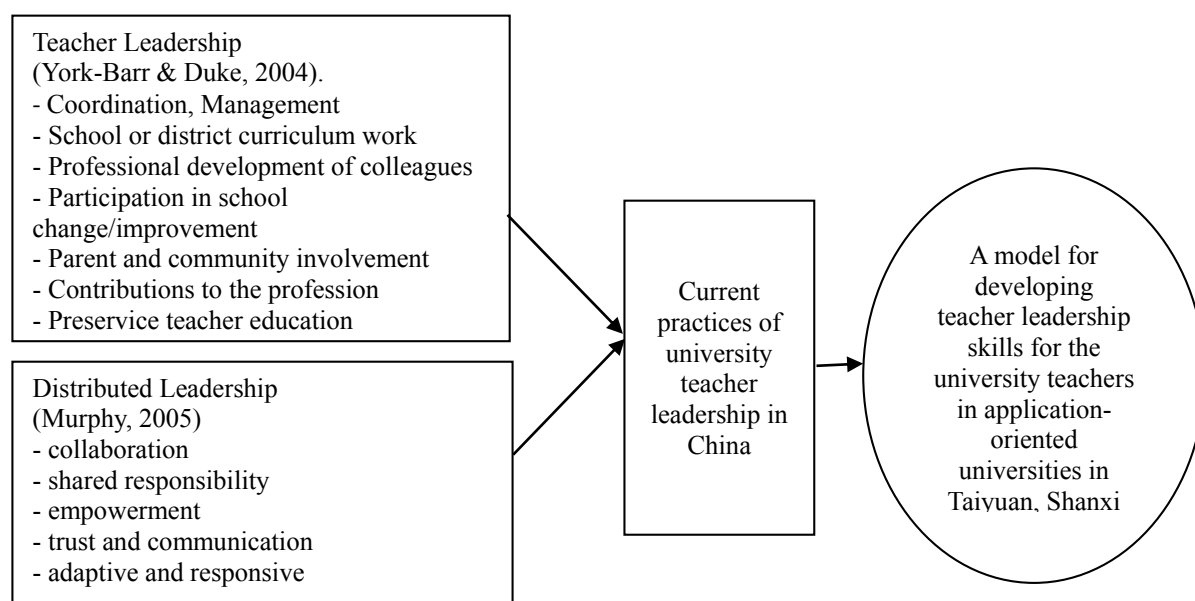
Research design

The researcher used a mixed methods research. On the one hand, the mixed methods research can improve the accuracy of the results of this study and increase its precision and efficiency. On the other hand, it can provide a more comprehensive and complete description of the construction of this study's model, making the structure of the model more thorough, scientific, and reasonable. First, the previous literature is classified and summarized through the qualitative method of systematic review. To integrate and analyze the current level of leadership skills of teachers in the Application-Oriented Universities in China and the factors affecting the leadership of teachers in the Application-Oriented Universities. Second, a questionnaire survey was developed for Objective 2 on selected management leaders and teachers at Application-Oriented Universities in Taiyuan, Shanxi Province, and the questionnaire data were collected via the Internet. Third, Based on obtaining Objective 2, Semi-structured interviews were conducted with five administrators and five teachers in Objective 3. Data from the interviews were content analyzed through qualitative methods. The results of the previous questionnaires were then quantitatively analyzed through multiple regression methods. Finally, in combination with the analysis of Objectives 1 through 5, a teacher leadership development model was developed and tested for validity by 15 experts.

Conceptual Framework

The conceptual framework of this study is shown in Figure 1. This study aimed to develop a model to strengthen teacher leadership in Application-Oriented Universities in Taiyuan, Shanxi, China. The researcher reviewed and analyzed two theories and a model that supported the study.

The conceptual framework of this study (as shown in the figure above) is based on teacher leadership (York-Barr & Duke, 2004) and distributed leadership theory (Murphy, 2005). The researcher conducted interviews and data research to derive the current practices of university teacher leadership in China. Subsequently, the researcher utilized the theory of distributed leadership to create "a model for developing teacher leadership based on the Chinese national standard" specifically for Application-Oriented Universities in Taiyuan, Shanxi Province, China. The ultimate goal of this model is to improve teacher leadership skills in Chinese Application-Oriented Universities.

Figure 1*Conceptual Framework***Quantitative Method*****Population and Samples***

For this study, the researcher set the criteria to study only the Application-Oriented Universities that received government financial and policy support for teacher leadership development. Hence, there are three Application-Oriented Universities: 1) Taiyuan Institute of Technology, 2) Shanxi Technology and Business College, and 3) Taiyuan College receiving government financial and policy support for teacher leadership development. The researcher then identifies the sample size using the Krejcie and Morgan table. Taiyuan Institute of Technology's population is 912, Shanxi Technology and Business College's population is 930, and Taiyuan College's population is 732. The total population size of the three universities is 2,574. According to utilizing the table of Krejcie and Morgan, the corresponding sample size is 366. Therefore, the average sample size of the three sample universities is 122. This study used a random sampling method for sample selection. A survey study was conducted by randomly selecting teachers in the three target universities.

Instrumentation

The researcher used two questionnaires to receive the data needed for this study. Objective two was a questionnaire designed based on York-Barr and Duke's seven domains theory and adapted to the situation in Taiyuan, Shanxi Province, China. The questionnaire was divided into seven domains, totaling 28 items. The second questionnaire was designed based on distributed leadership theory and adapted to the Chinese context, with five domains and 20 items. Both questionnaires used a 5-point Likert scale.

The researcher used IOC to ensure the validity of the questionnaire. To fulfill the requirements of IOC, the researcher evaluated the validity of the questionnaire based on the recommendations of five invited experts with research experience. The selected experts have more than five years of experience in education at an Application-Oriented University, including cadres of the Shanxi Provincial Education Department, middle management leaders of the Application-Oriented University, and professors and associate professors at the Application-Oriented University. They have worked in higher education for many years and are qualified to be experts in this field. To ensure the reliability of the questionnaire, the

researcher used a pilot study. The researcher conducted a pilot test with 30 participants. Then, the researcher used Cronbach's alpha, calculated using a statistical tool for validation, and concluded that each variable was above 0.7 (acceptable). The reliability coefficient varies from 0.00 to 1.00. The range of alpha coefficient is as follows: ≥ 0.9 (Excellent), > 0.8 (Good), ≥ 0.7 (Acceptable), ≥ 0.6 (Questionable), ≥ 0.5 (Poor), and less than 0.5 is unacceptable.

Data Collection

The questionnaire was developed in English and translated into Chinese to facilitate Chinese teachers' understanding. The researchers distributed the questionnaire to the participants through an online questionnaire platform in China, and the teachers had two weeks to complete and submit the questionnaire. The researcher provided the English version of the questionnaire and translated it into Chinese by a qualified translation agency. Finally, the Chinese version of the questionnaire was used as the research instrument in this study.

Data Analysis

For Objective 2, the researcher used the mean and standard deviation to assess the current level of educational leadership among teachers at Application-Oriented Universities in Taiyuan, Shanxi Province, China. For objective 3, the significant factors that influence the development of teachers' leadership skills in Application-Oriented Universities in Taiyuan, Shanxi Province, the relationship between the independent and dependent variables was found using SPSS multiple regression. The dependent variable is teacher leadership skills level, and the independent variables are collaboration, shared responsibility, empowerment, trust, communication, and adaptive and responsive skills.

Qualitative Methods

A systematic review methodology was used for objective 1. A systematic review is a comprehensive analysis, summarization, and review of the current research status of the field of study based on extensive reading and understanding of the literature in the field of study after the selection of the topic to understand the current research status of the subject and discover the problems of previous research, to find breakthroughs and innovations for new researchers. The main steps of a systematic review were 1. searching literature, 2. screening literature, 3. extracting and integrating data, 4. evaluating and summarizing (Earley, 2014). Based on this research method, this study conducted a systematic literature review of Objective 1 to obtain an answer to the question of what skills Application-Oriented University teachers should possess and factors that influence the leadership development of university teachers.

The researcher invited five experts to evaluate the research process to ensure further the soundness and reliability of these extracted elements and how they are classified. The variables and sub-variables finalized in this step are management leaders, professors, or associate professors of Application-Oriented Universities with many years of experience in higher education and research work to ensure the credibility of the research process and results.

Results and Discussion

This study has five research objectives. According to each objective, the findings and conclusions are as follows.

An exploration of teacher leadership skills of university teachers in China

To explore the teacher leadership skills needed by teachers in Application-Oriented Universities in Taiyuan, Shanxi Province, China, this study identified seven teacher leadership skills through a systematic review: 1. searching literature, 2. screening literature, 3. extracting

and integrating data, and 4. evaluating and summarizing (Earley, 2014). The seven leadership skill outcomes then included coordination, management, school or district curriculum work, professional development of colleagues, participation in school change/improvement, parent and community involvement, contributions to the profession, and pre-service teacher education. Table 1 summarizes the definitions of teacher leadership skills for this study.

Table 1*Summary of Skills Needs in University Teacher Leadership*

No	Keyword	Sub-keyword	Description	Source
1	Coordination, Management	- Participate in management tasks - Lead changes. - Solve difficulties	Organizes communication and coordination with other teachers; arranges daily school activities and special events coordination.	Zhang (2016). Jin (2007). York-Barr and Duke (2004). Shelton (2014). Wilson (1993).
2	School or district curriculum work	- Formulate goals and standards - Select and develop curriculum teaching	Teacher leaders choose to develop instructional materials for their schools and districts.	Zhang et al. (2018). Li (2021). Zhang et al. (2018). Cooper et al. (2016) Yang et al. (2019). Gronn (2002).
3	Professional development of colleagues	- Lead the work team. - Guide and encourage professional growth - Guide other teachers.	Takes on the task of leading the professional development of colleagues and guiding and encouraging the professional development of other teachers, especially new teachers.	Lou (2015). Arnold et al. (2000). Cooper et al. (2016). Danielson (2006). Li (2009). Acker and Touchton (1999). LeBlanc and Shelton (1997).
4	Participation in school change/ improvement	- Participate in the school's scope of decision-making. - Cooperate with colleagues to promote school improvement - Promote team learning through the form of organization.	Participate in school development and instructional reform decisions and help schools improve their development and instructional reform.	Sun and Cheng (2020). Zhou and Guo (2014). Lieberman (1988). Phelps (2008). Kouzes and Posner (2017). Yarger and Lee (1994).
5	Parent and community involvement	- Communicate and collaborate with parents. - Encourage parental involvement in school activities - Integrate innovation and community affairs.	Ability to communicate and collaborate with parents and encourage parental involvement in school activities Collaborate with communities and organizations to meet diverse educational needs.	Cai (2005). Grant et al. (2010). Xu et al. (2020). Wenner and Campbell (2017). Murphy (2005). Frost (2018).
6	Contributions to the profession	- Join professional teaching organizations - Active networking with companies and other educational organizations	The school encourages teachers to actively network with companies and other government organizations to integrate professional development with practical teaching.	Ding (2018). Poekert et al. (2016). Zhou (2013). Wang and Sally (2017).

No	Keyword	Sub-keyword	Description	Source
7	Pre-service teacher education	- Train teachers and novice - Develop teachers' future competencies - Have special teacher training standards	The school attaches importance to the training of novice teachers and enhances the training and education of novice teachers in all aspects. The school has special rules and regulations for training teachers.	Yang and Li (2014). Zeng (2020). Thornton (2010). Qi et al. (2021).

To identify the current practices of the teachers' leadership qualities at the Application-Oriented Universities in Taiyuan, Shanxi Province, China

The researchers sent questionnaires to 366 faculty members at three targeted Application-Oriented Universities. Table 2 summarizes the mean and standard deviation of the teacher leadership level test. The overall mean for this objective is 3.83, and the standard deviation is 0.58, indicating that the current level of teacher leadership in the three Application-Oriented Universities in Shanxi Province was high. The seven domains of Domain 1, "Coordination, management," were at a high level; Domain 2, "Professional development of colleagues," was at a high level; Domain 3 "Participation in school change/improvement" was at a high level; Domain 3 "Participation in school change/improvement" was at a high level; and Domain 4 "Leadership of teachers" was at a high level. At a high level; Domain 4, "Contributions to the profession" at a high level; Domain 5, "School or district curriculum work" at a high level; Domain 6, "Parent and community involvement" at a high level; Domain 7, "Providing support to students and community members" at a high level; and Domain 8, "Providing support to students and community members" at a high level. Domain 7, "Pre-service teacher education," was also high. The highest domain is domain 7, with a mean of 4.05 and a standard deviation of 0.80, while the lowest domain is domain 4, with a mean of 3.62 and a standard deviation of 1.02.

Table 2

The Current Practices of the Teachers' Leadership Qualities (n=366)

Domains	<i>M</i>	<i>SD</i>	Interpretation
Domain 1: Coordination、management	3.91	.85	High
Domain 2: Professional development of colleagues	3.85	.85	High
Domain 3: Participation in school change/ improvement	3.65	.96	High
Domain 4: Contributions to the profession	3.62	1.02	High
Domain 5: School or district curriculum work	3.75	.90	High
Domain 6: Parent and community involvement	3.98	.81	High
Domain 7: Pre-service teacher education	4.05	.80	High
Total	3.83	.58	High

To find the significant factors influencing teacher leadership development in the three Application-Oriented Universities in Taiyuan, Shanxi Province, China

After collecting the data, the researchers tested the study for correlation to ensure that the variables used to calculate the regression were valid. The summary of Table 3 shows that tolerance and VIF are causally related. When VIF is less than 5, there is no multicollinearity problem. The adjusted R-squared is 0.55, indicating that the independent variable accounts for 55% of the variance of the dependent variable. The P-value is 0.000, less than 0.05, indicating a significant linear relationship between the dependent and independent variables. The researcher focused on the table of coefficients, especially the cells "B" and "Sig" under

"Unstandardized Coefficients." The estimated regression equation for this objective is teacher leadership skills level = $0.81 + 0.18 * \text{collaboration} + 0.15 * \text{shared} + 0.12 * \text{empowerment} + 0.14 * \text{trust} + 0.19 * \text{adaptive}$. Independent variables collaboration, shared responsibility, empowerment, trust and communication, adaptive and responsive were all significant at 0.000, less than 0.05. The coefficients are all greater than 0, indicating that they have a significant positive effect on the level of leadership skills of teachers. Therefore, all five factors significantly affect the development of teachers' leadership skills in three Application-Oriented Universities in Taiyuan City, Shanxi Province.

Table 3

the significant factors influencing teacher leadership development (n=366)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.81	.14		5.67	.000		
collaboration	.18	.03	.25	6.31	.000	.78	1.28
shared responsibility	.15	.03	.22	5.75	.000	.82	1.23
empowerment	.12	.02	.20	5.15	.000	.84	1.19
trust and communication	.14	.03	.20	5.11	.000	.79	1.27
adaptive and responsive	.19	.03	.27	6.96	.000	.83	1.21

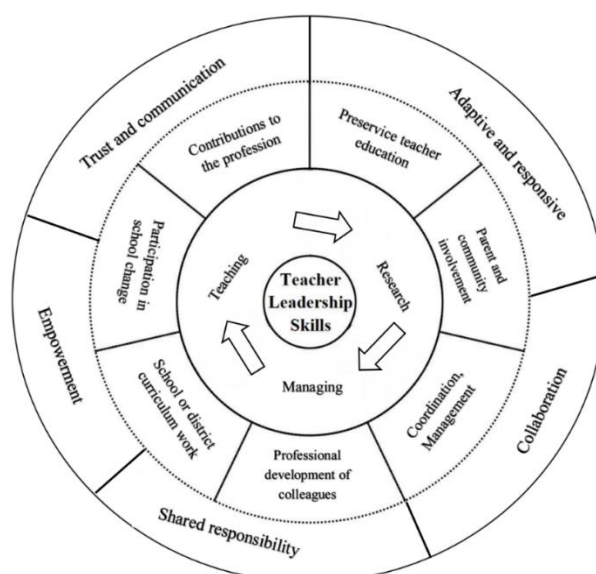
Dependent Variable: Level of Teacher Leadership

To develop a model for teacher leadership at Application-Oriented Universities in Taiyuan, Shanxi Province, China

In order to enhance the leadership skills of teachers in Chinese Application-Oriented Universities, the researcher designed and developed a model. During the development of the model, the researcher interviewed ten experts who had taught and managed in Application-Oriented Universities using semi-structured interviews that lasted about 30-45 minutes and totaled four questions with sub-questions. The data and keyword information collected from the interview questions were linked to the research objectives 1 to 3 of developing the model. The researcher proposed a draft model, as shown in Figure 1.

Figure 1

The Model Draft



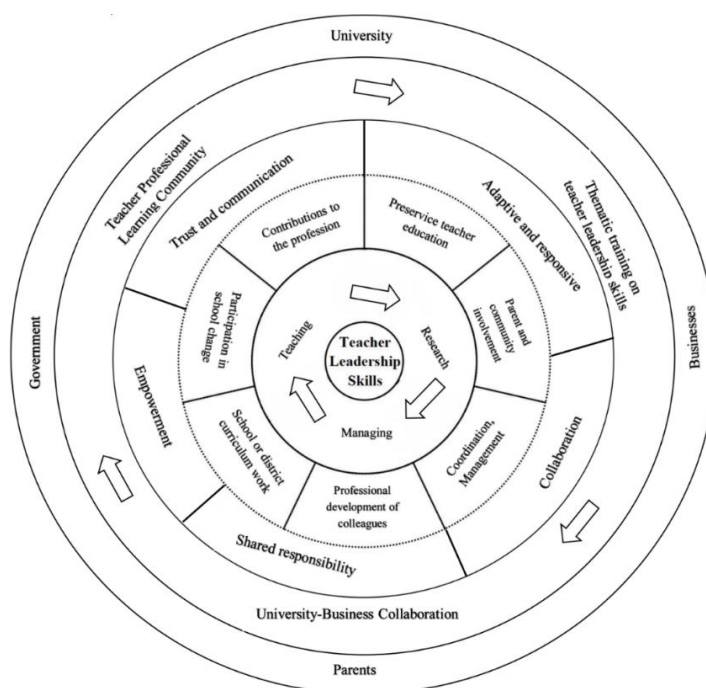
To validate the model for developing teacher leadership at Application-Oriented Universities in Taiyuan, Shanxi Province, China

After the draft model was presented, validation was completed as planned by 15 experts who assessed the model development process. The 15 experts were educators with extensive experience in teacher development, leadership education, and other fields. With professional years ranging from 9-35 year.

All experts approved and agreed with the model's overall design, but there were three points where further modifications and improvements were needed. First, the activities for measuring teacher leadership skills were added to make the model operation more feasible and repeatable. Second, the implementation subjects should be added to improve teacher leadership skills and make the model more specific and rationalized. Finally, it enhances the aesthetic beautification of the model. According to the comments from the experts, add the following three activities: teacher professional Learning community, thematic training on teacher leadership skills, and university-business collaboration. Combined with the above expert review comments, the final model figure is as follows:

Figure2

Final Model



Discussion and Recommendations

Discussion

Leadership is essentially a kind of influence, and York-Barr & Duke, based on a review of more than 20 years of teacher leadership literature, viewed teacher leadership as the process by which teachers influence their colleagues, principals, and other members of the school community, either through their strengths or as a group, to enhance teaching and learning practices and ultimately student learning and achievement (York-Barr & Duke, 2004). While the study and application of teacher leadership in Western countries, represented by the United Kingdom and the United States, has a rich history and practical experience, there is a lack of literature on teacher leadership in China, especially in the economically underdeveloped

regions of central and western China where the researcher is located. There is a dearth of literature on teacher leadership, and the literature on teacher leadership in Application-Oriented Universities is almost blank. (Wei, 2015; Wang & Xu, 2021; Zhou & Guo, 2014). However, as China's higher education scale continues to expand significantly, with more than half of its future colleges and universities transforming into Application-Oriented Universities, research on faculty leadership in higher education continues to deepen, and the role of faculty leadership in colleges and universities continues to be emphasized (Pan, 2022).

First, the model established in this study is designed according to the national conditions of China and the local characteristics of Shanxi Province; the model was designed based on some of the essential skills required of teachers by the Chinese government, mainly some documents issued by the government which is easier to understand by Chinese university teachers. They know how to improve their teacher leadership compared to the teacher leadership models constructed in Western countries. In addition, this study provides recommendations for the education department of the Shanxi provincial government, Application-Oriented Universities, and university faculty, which are essential guidelines for multiple actors, including Chinese local governments, universities, enterprises, and parents, to participate in the macro goal of improving teacher leadership.

Second, in China nowadays, university teachers do not pay the most attention to improving core teaching skills but more to improving research skills. This study found that, unlike Western universities, since China's appraisal and evaluation policy favors scientific research skills, publishing more scientific research articles is the key to whether teachers can be promoted to the rank of associate professor and professor; most Chinese university teachers emphasize on scientific research skills and neglect on teaching skills, which makes the leadership skills of Chinese university teachers more inclined to the enhancement of scientific research skills and relatively neglected on the enhancement of teaching skills. This makes the leadership skills of Chinese university teachers more oriented to the improvement of research skills while relatively neglecting the improvement of teaching skills(Wang, 2020; Zhang. et al., 2018).

The researcher found that in Chinese universities, leaders and key teachers generally hold all kinds of academic authority and "voice" and that if a school has a cooperative and sharing culture, the willingness of these authoritative teachers to cooperate and share is higher. On the contrary, the level of cooperation and sharing among teachers in the school is lower, and teachers become less adaptive and responsive. Therefore, it is essential to create a democratic and egalitarian campus culture to enhance teacher leadership and teacher influence in Chinese universities.

Third, it is generally believed that as a socialist country, China's university teachers are more obedient than in other countries and that programs for organizing university teacher training are more demanding and efficient. However, it was found by the researcher through interviews that although there are many "training programs" in Chinese universities, such as "summer training" and "winter vacation training" in every university, the whole training system in China nowadays has a lot to offer. However, in the entire training system in China today, there is a lack of positive action by teacher leaders. There is no single form of training; the training content is old and lacks systematicity and consistency, and there is no flexible curriculum for teachers to choose from (Zheng, 2016). Therefore, the current teacher training in Chinese universities is more about the subject knowledge of the training, inculcating the old educational ideas, and losing the value that teacher training should have.

Finally, this research aims to enhance teachers' leadership skills in Chinese Application-Oriented Universities by developing a model. Although this study conducted a preliminary theoretical exploration of teacher leadership in China's Application-Oriented Universities, the

theoretical system is far from a mature standard because the previous literature on teacher leadership in China's Application-Oriented Universities is blank. Therefore, for future researchers, it is necessary to continue to improve the theoretical framework of teacher leadership in Application-Oriented Universities, especially the preparation of the measurement questionnaire and the construction of the structural model should be given enough attention and strive to build a universally agreed upon structural framework in the future that is suitable for most of the regions, and through the reliability and validity empirical test, and eventually to promote the effective enhancement of the level of leadership skills of university teachers. Therefore, future researchers should focus on enhancing the theoretical framework of teacher leadership in Application-Oriented Universities. This should include giving due attention to developing measurement questionnaires and models to construct a universally accepted structural framework suitable for most regions. Through empirical tests of reliability and validity, they can ultimately promote the effective improvement of university teachers' leadership skills.

Recommendations

In China, different teachers have different levels of teacher leadership. For example, some teachers acquire many teacher leadership skills as soon as they enter the workforce, while others do not want to improve their skills in this area from the inside. Combined with the model of teacher leadership development in Application-Oriented Universities in Taiyuan City, Shanxi Province, proposed in this study, the improvement of teacher leadership is not something that can be done overnight, and the cooperation and support of multiple subjects, including the government, the university, and the teachers, are needed for the overall improvement of teacher leadership skills. Therefore, in order to improve the leadership skills of teachers of Application-Oriented Universities in Taiyuan City and to conduct better research, the research provides the recommendations as follows.

a. For Application-Oriented University Teachers. First, they need to understand the gist of the concept of teacher leadership. The indifference of Chinese university teachers to their leadership consciousness and their lack of understanding of teacher leadership are the main reasons that hinder the adequate performance of university teachers' leadership. Some teachers are accustomed to being led and managed, thus affecting the reform efforts of Chinese university education. Second, they need to strengthen teachers' personal quality and competence. Teachers' quality and ability will significantly impact university teachers' leadership, and the enhancement of teachers' leadership requires the government and schools to build a favorable atmosphere environment and continuously improve the quality and ability of self. Third, they need to try to develop effective teacher leadership. Teacher leaders implement influence on colleagues, students, and the university through their professional knowledge and ability, personality, and charisma in the process of education, teaching, and academic research. Teachers need to participate actively in school-enterprise cooperation, assist other colleagues in accomplishing various tasks, actively contribute to the reform and development of the school, and consciously play a leadership role in teaching, research, and administrative work.

b. For Application-Oriented Universities. On the one hand, they should offer a series of educational programs on teacher leadership. To become teacher leaders in China, university teachers need a wealth of specialized knowledge and skills, including leadership knowledge and skills such as strong communication, interpersonal, and organizational skills. In the process of teacher leadership education and training, the university should carry out targeted training courses in combination with each teacher's personality characteristics and personal career planning, explore each teacher's strengths and specialties so that each teacher, through training

to clearly understands their career planning, clear their future career development. On the other hand, they must create a campus culture of collaboration, openness, and sharing. For teacher leadership to be effective in China, there needs to be a shift in school cultural thinking and values within the university, breaking down the traditional Chinese administrative definitions of the roles of teachers, administrators, and principals deeply rooted in Chinese tradition. Creating a school where all teachers have a sense of shared leadership and a common vision allows the concepts of sharing and decentralization to permeate the school culture (Harris & Muijs, 2005). Universities need to encourage teachers to be actively involved in decision-making in the school to enhance their understanding of the school's decision-making process and inspire them to be accountable.

C. For the Education Ministry in Shanxi Province. In China, government departments, especially the education department, should take various measures to help Application-Oriented Universities improve teacher leadership skills. First, develop policies related to teacher leadership education. Relevant government education authorities can standardize the development direction of university teacher leadership education by regulating the policy of teacher leadership education so that university teachers can clearly understand and improve their teacher leadership skills. Second, to guide the development of multiple forms of teacher leadership education. Relying on China's mature and diversified teacher education models, government education departments can further enrich and refine new models of teacher leadership education, top-level design of cooperative education models in colleges and universities, university community cooperation models, etc., and guide multiple subjects to build platforms to support teacher leadership education. Third, the evaluation of university teachers' work should include the content of teacher leadership. Incorporating the knowledge of teacher leadership and educational leadership into the assessment of university teacher qualification certificates and practitioner certificates is very necessary for university teachers to enter the role of a teacher quickly after joining the profession.

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