# A preliminary study on the construction of leadership development model for university teachers

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## Abstract

Based on the theoretical research on teacher leadership, this paper adopts the qualitative research method of grounded theory and takes 10 outstanding teachers in universities as the research objects. Qualitative research data are obtained through interviews and text analysis. With the help of qualitative analysis software Nvivo12,the data are analyzed. The leadership development of university teachers is summarized into four dimensions: moral leadership, teaching leadership, scientific research leadership and team leadership, and the theoretical analysis framework model of the leadership development of university teachers is initially constructed. In order to further verify the rationality of the model and provide a measurement basis for the leadership development of college teachers, this study adopts quantitative research method, and takes 317 college teachers as subjects, and uses SPSS software for reliability analysis, validity analysis, correlation analysis and other methods to conduct large-sample empirical testing of the designed model. The four-dimensional model of college teachers' leadership development has been further verified.

**Keywords:** University Teachers; Teacher Leadership; Teacher Leadership Development Model; Qualitative and Theoretical Research; Quantitative Research Methods

## Introduction

Teacher leadership, as one of the core qualities of teachers, plays an important role in the professional development of teachers and the improvement of education quality. In the "double first−

class construction" of the current competition of excellent talents, how to improve the leadership of excellent talents, let more college teachers grow into the leading figures of the development of disciplines, shoulder the heavy responsibility of the development of higher education in our country, and become the important issue of research on the development of college teachers.

Since the rise of teacher leadership theory in the United States in the 1980s, it has been widely concerned by education researchers in various countries, and the theoretical and practical research has been continuously developed, providing a new mode of thinking and perspective for education and teaching reform. However, a survey of the current research at home and abroad shows that the construction and verification of teacher leadership model is mainly based on the leadership of primary and secondary school teachers, and the research on teacher leadership of university teachers is relatively lacking. In order to further clarify the elements of college teacher leadership and establish a measurement tool for the development of college teacher leadership in China, this study intends to construct a theoretical model of college teacher leadership by combining qualitative research and quantitative research according to China's local characteristics, in order to provide theoretical basis and practical reference for further promoting the development of university teacher leadership.

## Research Objectives

1. Through qualitative research to explore the elements of college teachers' leadership development, so as to establish a college teachers' leadership development model theoretical framework.

2. Through empirical research to confirm the elements of college teachers' leadership development, to establish new goals and guidance for college teachers' professional development.

3. This paper probes into the cognitive status of college teachers' leadership in order to summarize the importance of college teachers' leadership development.

## literature review

### 1. Origin of teacher leadership development

The theory of teacher leadership originated from the education reform movement in the United States in the 1980s. Its purpose is to stimulate teachers' sense of ownership and promote teachers'

active participation in the leadership and development of education reform. Since then, as an effective strategy to improve teaching, promote teachers' professional development and enhance students' academic performance, teacher leadership research has been flourishing in the United States, the United Kingdom, Australia, Canada and other European and American countries, and has also received extensive attention from education experts and scholars in China in recent years.

## 2. Stages of teacher leadership development

Teacher leadership is the development and application of transformational leadership, charismatic leadership, moral leadership, distributed leadership and other new leadership theories in the field of education. According to scholars such as Silva (Sato & Monte-Sano, 2002); Little (Little J.W,2003) and Hatch (Hatch,2005), the connotation development of teacher leadership can be summarized into three stages:

In the first phase (1980s), teacher leadership was considered to be the ability of the few teachers appointed to formal leadership positions to take on the tasks of school management and supervision of their peers. At this stage, the research on the connotation of teacher leadership is mainly limited to the leadership role and individual leadership behavior of teachers. For example, Fullan believes that teachers with leadership status and roles should play an important role in six areas: teaching and learning, peer group, context, continuous learning, transformational school management, and the meaning of school moral purpose (Jin, 2016).

With the increasing emphasis on teachers' professional knowledge and authority in education reform, teacher leadership in the second stage (mid-1990s) is mainly regarded as the ability of some excellent teachers to play the role of curriculum leadership and peer development, the core of which is teaching leadership. The connotation research of teacher leadership at this stage highlighted the professional attribute of teacher leadership, which was specifically defined by some researchers as the "knowledge, skills and emotions" shown by teachers in their teaching work (Yuet, Yusof & Mohamad, 2016). At this stage, the empirical research on the effect of teacher leadership on improving students' learning and promoting school development is quite prevalent.

With the transformation of schools into learning communities, teacher leadership is no longer limited to the concepts of "hierarchy" and "role orientation". In the third stage (after the mid-1990s), teacher leadership is no longer regarded as a position, status and privilege of only a few people, but a positive interactive and purposeful interpersonal influence, which is a group process (Grant, Gardner,

Kajee, Moodley & Somaroo,2010). It exists in every teacher who is willing to contribute to the professional community of teachers and take responsibility for achieving the goals of the school. The connotation of teacher leadership at this stage puts more emphasis on teachers' collective responsibility and sharing, and on developing teachers' teamwork ability such as collaboration and responsibility. York-barr and Duke, for example, define teacher leadership as a teacher's ability to promote the development of teaching practices, to build trusting and constructive relationships with colleagues, and to interact through formal and informal influences (York-Barr & Duke, 2004). At this stage, what gives a more comprehensive and authoritative definition of the connotation of teacher leadership are the "Teacher Leadership Model Standard" formulated by the "American Teacher Leadership Explorer Alliance" in 2011 and the "Teacher Leadership Framework" issued in 2015. Based on the research and review of national and state teacher leadership programs in the United States, the consortium drafted a model standard consisting of seven areas, and on this basis constructed a leadership framework consisting of teacher leader literacy and leadership behavior.Teachers' ability of self-development, driving innovation, coaching others and leading teams are regarded as the core components of teacher leadership (Xu, 2019).

### 3. Connotation of teacher leadership

Throughout the development of the connotation research of teacher leadership, it can be seen that although the researchers have different positions, angles and focuses on the definition of teacher leadership at different stages, the morality, professionalism and collectivity of teacher leadership are a common thread. Teacher leadership can be understood as a comprehensive ability of teachers to play an all-round leading role in school culture, teachers' peers, teaching and scientific research, promote teachers' professional development and students' all-round development, promote education reform and improve education quality through their own noble professional ethics, excellent professional ability, advanced teaching concept and collective cooperative behavior.
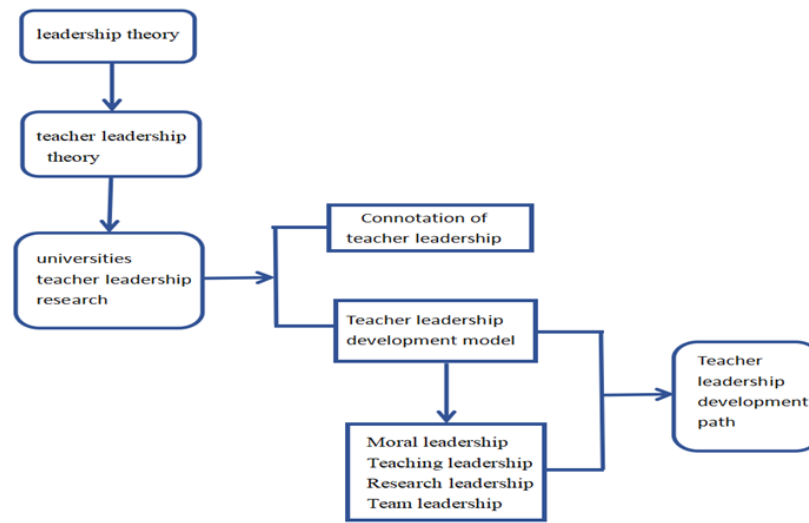
## Conceptual Framework



**Figure1** Conceptual Framework (source: Created by researchers, 2024)

## Research Methodology

### 1. Research design

#### 1.1 Research methods

At present, the construction and verification of teacher leadership model are mainly based on the leadership of primary and secondary school teachers, and the research on the leadership of college teachers is relatively lacking. College teachers not only have the general characteristics of teacher groups, but also have the exclusive characteristics of senior intellectuals. Then, what are the core elements of college teachers' leadership? How to interpret it? In order to find the answer to the above questions, this research adopts the qualitative research method of grounded theory, because this research method is more suitable for analyzing the immature theoretical phenomena with local characteristics (Chen,2000).

#### 1.2 Data Collection

Excellent university teachers have more significant characteristics in teacher leadership. Therefore, this study decides to choose excellent university teachers as the research object in terms of sample selection, which mainly includes two parts:

Some of them are outstanding teachers in national colleges and universities who were selected as "National teaching Model";

The other part is 10 outstanding college teachers who have made outstanding achievements in teaching, scientific research and ethics. These teachers come from colleges and universities in different provinces, and they get to know and get in touch with each other and accept interviews through attending academic conferences, symposiums of researchers, peer recommendations, etc.The interviews of these 10 teachers were mainly conducted by semi-structured questionnaire interviews. Based on the purpose of empirical research, the interviews were designed as follows.

1.2.1 How do you understand the leadership of university teachers?

1.2.2 Please tell me about the aspects of your usual leadership for students. What kind of influence do you have on your students? How is it achieved?

1.2.3 Can you tell me about your leading role in your colleagues? How is it achieved?

1.2.4 Do you think teams are important? What role did the team play in your development? Can you tell me something about your role as a team leader?

1.3 Data Analysis

The collected data were input into the qualitative analysis software Nvivo 12, and the data were analyzed through the grounded theory. The analysis process mainly included three stages: open coding, spindle coding and selective coding. Coding under the framework of rooted theory is theoretical coding, which follows the process of "original data $\rightarrow$ labeling $\rightarrow$ concept formation $\rightarrow$ category determination", and creates theories while coding.

1.3.1 Open coding

Combined with videos and detailed interview transcripts, the concept is formed by continuous comparison of the original data and word-for-word labeling. Conceptualized text can further structure the unstructured interview records, extract new concepts and ideas from the empirical facts, find out the relevant sentences reflecting the leadership of college teachers, further clarify their meanings, and extract more accurate and valuable concepts. The concepts are taken as nodes for open coding. 65 native concepts were extracted and refined, and 14 categories were formed through systematic classification and combination.

1.3.2 Spindle coding

Strauss and Cobin describe spindle coding as a special high-level coding tool for establishing relationships between categories and extracting the main categories (Woodo Kukac,2014). Spindle coding focuses on a specific category and how it relates to other categories. Through spindle coding, further reading, thinking and analysis of 65 localized concept contents obtained through open coding are made, and the conceptual contents are adjusted and merged to find out the commonality of these conceptual contents, and the 65 conceptual categories are summarized into 14 main categories, which are: Dedication, honesty, hard work, down-to-earth, care for students, help them grow, treat people equally, example; Teaching excellence, student recognition, promoting education reform, committed to innovation, focus on communication, encourage questions; Scientific research interest, scientific research innovation, scientific research will, scientific research guidance; Sense of cooperation, team influence. The following table.

**Table 1** Spindle encoding focuses on specific categories and their relationships with other categories.

| Main Category | Category | Category Connotation |
|---|---|---|
| Moral leadership | Political appraisal | A firm political stance |
| | Personality charisma | Excellent personal qualities (diligence, humility, optimism, etc.) have a positive impact on others. |
| | Professional demonstration ability | A model of being responsible in work, striving for excellence, caring for and helping students to grow and moral Character. |
| Teaching leadership | Teaching decision-making power | Carry out, mobilize, stimulate students' potential, and solve problems in the classroom. Ability to achieve good teaching outcomes. |
| | Teaching implementation ability | Carry out, mobilize, stimulate students' potential, and solve classroom. Ability to achieve good teaching outcomes. |
| | Teaching innovation | The ability to apply new teaching technologies, methods, and scientific research results to classroom teaching and promote teaching innovation. |
| Research leadership | Research focus | Strong interest and significant investment in scientific research. |

| Main Category | Category | Category Connotation |
|---|---|---|
| | Research willpower | In scientific research, he is fearless of difficulties, challenges himself, and perseveres. |
| | Innovation in scientific research | A scientific research innovation spirit that boldly questions and authority. |
| Team leadership | Team spirit | The consciousness of proactively collaborating with peers in teaching and research work. |
| | Team influence | Strong influence on peers in team collaboration. |

### 1.3.3 Selecting an encoding

After the spindle coding is completed, according to the coding information, the spindle coding can be summarized into four core categories, namely, moral leadership, teaching leadership, scientific research leadership, and team leadership. Dedication, honesty, hard work, down-to-earth, caring for students, helping them grow, treating people equally, and setting an example are the four main axes that can be summarized as moral leadership. Teaching excellence, student recognition, promotion of teaching reform, dedication to innovation, focus on communication, encourage questions, these three main axes can be summarized as teaching leadership. The four main axes of scientific research interest, scientific research innovation, scientific research will and scientific research leadership can be summarized as scientific research leadership. The two main axes of cooperation consciousness and peer influence can be summarized as team leadership. As shown in the table below

**Table 2** The distribution of data in various dimensions in coding

| Select encoding | Axial coding | Frequency | Percentage of open coding frequency |
|---|---|---|---|
| Moral leadership | Dedicated, honest and upright | 21 | 11.4% |
| | Diligent and down-to-earth | 13 | 8% |
| | Caring for students and helping them grow | 24 | 15% |
| | Treating others equally and demonstrating by example | 13 | 6.8% |
| Teaching leadership | Excellent teaching and student recognition | 12 | 7.5% |
| | Promote educational reform and strive for innovation | 8 | 3.9% |
| | Emphasize communication and encourage questioning | 20 | 11.3% |

| Select encoding | Axial coding | Frequency | Percentage of open coding frequency |
|---|---|---|---|
| Research leadership | Research interests | 11 | 5.8% |
| | Scientific research innovation | 9 | 5% |
| | Research will | 8 | 6% |
| | Scientific research guidance | 6 | 4% |
| Team leadership | Cooperative awareness | 14 | 7.2% |
| | team influence | 14 | 7.2% |

## 2. Model frame design

In terms of coding frequency, moral leadership accounted for 41.2% of all coding frequency, ranking first; Teaching leadership accounted for 22.7% of all selected coding frequency, ranking second; Scientific research leadership accounted for 21.7% of all selected coding frequency, ranking third; Team leadership accounted for 14.4% of all chosen coding frequency, ranking fourth.

For Strauss, the process of coding within the framework of grounded theory is the process of creating theory. Through three steps of open coding, spindle coding and selective coding, this study established a preliminary theoretical framework model for the leadership development of university teachers, as shown in the figure below.
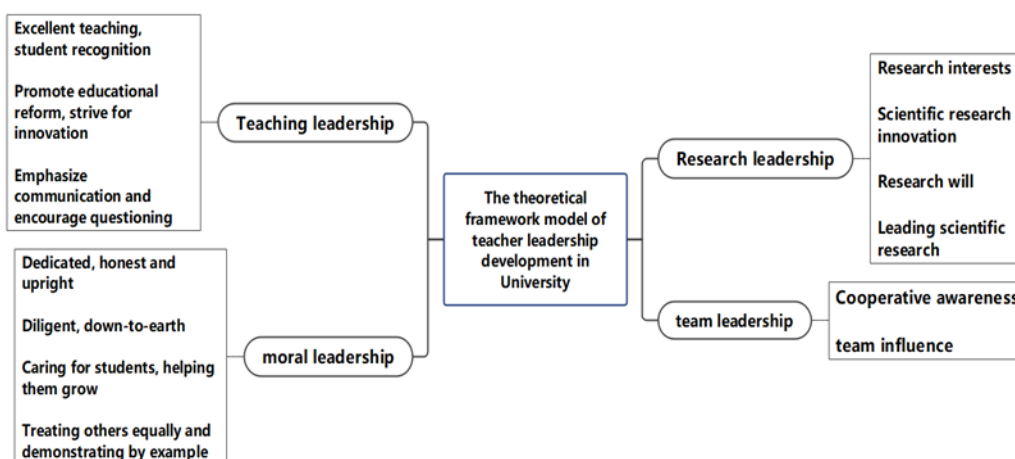


**Figure 2** The theoretical framework model of college teachers' leadership

(source: Created by researchers, 2024)

## 3. Empirical test design

The purpose of this study is to build a theoretical model of teacher leadership in colleges and universities. On the basis of theoretical research and qualitative research, the researcher first constructed a theoretical framework model of young teachers' leadership in colleges and universities to further verify the rationality of the theoretical framework and provide a measurement basis for the development of teacher leadership in colleges and universities. The research conducted a large sample empirical test of the designed model through quantitative methods.

3.1 Research object and sampling method

From November 2023 to February 2024, this study conducted a special investigation on random questionnaires issued by teachers in 9 colleges and universities in Henan, Hebei, Zhejiang, Sichuan, Hunan, Hubei, Chongqing, Guangzhou and Beijing. In a non-probabilistic way, college teachers (excluding counselors) are issued questionnaires in the form of online questionnaire stars, and teachers can answer them on mobile phones or computers through the network, which is convenient and fast.

The network questionnaire has the advantages of low cost and all-weather. A total of 350 questionnaires were issued, 327 were recovered, and 317 were effectively asked after excluding incomplete questionnaires. The specific composition of the questionnaire sample is shown in the table.

**Table3** Demographic Characteristics of college Teacher Leadership Development Questionnaire Sample

(N = 317)

| Name | Options | Frequency | Percentage (%) | Cumulative percentage (%) |
|---|---|---|---|---|
| sex | man | 139 | 43.849 | 43.849 |
| | woman | 178 | 56.151 | 100 |
| age | under 30 years old | 28 | 8.833 | 8.833 |
| | 31-40 years old | 154 | 48.58 | 57.413 |
| | 40-50 years old | 96 | 30.284 | 87.697 |
| | over 50 years old | 39 | 12.303 | 100 |
| educational background | bachelor degree | 9 | 2.839 | 2.839 |
| | postgraduate | 81 | 25.552 | 28.391 |
| | doctoral candidate | 226 | 71.293 | 99.685 |
| | other | 1 | 0.315 | 100 |
| professional title | teaching assistant | 39 | 12.303 | 12.303 |

| Name | Options | Frequency | Percentage (%) | Cumulative percentage (%) |
|------|---------|-----------|----------------|---------------------------|
| | lecturer | 88 | 27.76 | 40.063 |
| | associate professor | 122 | 38.486 | 78.549 |
| | professor | 68 | 21.451 | 100 |

3.2 Questionnaire design

According to this study, a theoretical model of college teacher leadership was constructed, and two questionnaires, "College Teacher Leadership Development Questionnaire" and "College Teacher Leadership Development Environment Questionnaire", were designed. The questionnaire mainly includes four dimensions: moral leadership, teaching leadership, scientific research leadership and team leadership. Moral leadership specifically examines the ability of college teachers to have a positive impact on students, teachers' peers and school administrators by virtue of their professional ethics, ability and emotion. Teaching leadership specifically examines teachers' ability in teaching decision-making, teaching implementation and teaching innovation; Research leadership specifically examines teachers' research focus, research will, research spirit, research attitude and peer demonstration and leadership of students and teachers, as well as the impact of their innovation and creation in the field of research on scientific and technological progress and economic development; Team leadership specifically examines teachers' teamwork spirit and team operation ability. The questionnaire adopts Likert scale scoring method, and adopts a 5-point scale scoring method. "5" means complete agreement, "4" means relatively agreement, "3" means neutral, "2" means relatively inconsistent, and "1" means completely inconsistent. Respondents choose their own answers.

3.3 Research results and analysis

3.3.1 Project analysis, reliability and validity analysis

The main purpose of item analysis is to check the appropriateness or reliability of questionnaire preparation, and the results of item analysis can be used as the basis for item selection and modification (Wu,2009). In this study, SPSS22.0 was used for item analysis of the questionnaire. First of all, the total score of the scale was ranked from low to high, and the first 27% was selected as the low group and the last 27% as the high group. Independent sample T test was conducted to investigate the differences between the two groups in each item. The results showed that the

differences in T detection were all significant, indicating that the items in the questionnaire had discrimination.

After the project analysis, in order to further understand the reliability and stability of the questionnaire, the reliability test of the questionnaire was carried out in this study. Reliability refers to the degree of consistency of measurement results after repeated measurement. Cronbach's Alpha, also known as internal consistency reliability, is a common measure of the internal consistency of a measurement tool. In exploratory factor analysis, 0.5 is considered acceptable, in confirmatory factor analysis, 0.6 is considered acceptable, 0.7 is considered good, and 0.8–0.9 is ideal. The research results show that the "Leadership Development Questionnaire for University teachers" has a high reliability, as shown in the following table.

**Table 4** Reliability coefficient of university teachers' leadership development

| Dimensionality | Cronbach's $\alpha$ coefficient | Number of terms |
| --- | --- | --- |
| moral leadership | 0.919 | 6 |
| teaching leadership | 0.788 | 7 |
| research leadership | 0.867 | 7 |
| team leadership | 0.827 | 5 |
| scale ensemble | 0.913 | 25 |

**Table 5** Environmental reliability coefficient of university teachers' leadership development

| Dimensionality | Cronbach's $\alpha$ coefficient | Number of terms |
| --- | --- | --- |
| Environmental factor | 0.893 | 5 |

This study analyzes the exploratory factors of the Questionnaire on Leadership Development of University Teachers. KMO test and Bartlett sphericity test of the questionnaire, KMO value is 0.960, Bartlett sphericity test (P < 0.001), indicating that there is a very significant correlation between questionnaire items, more suitable for factor analysis.

**Table 6** KMO test and Bartlett test

| KMO value | | 0.926 |
| --- | --- | --- |
| Bartlett sphericity test | Approximate chi-square | 6119.556 |
| | df | 300 |
| | P | 0.000[***] |
| Note: ***, ** and * represent significance levels of 1%, 5% and 10% respectively | | |

### 3.3.2 Descriptive analysis

The descriptive statistics show that the mean values of moral leadership and teaching leadership are 4.36 and 4.16 respectively, which are at a relatively high level. The mean value of scientific research leadership is 3.26, which is in the middle level, and the mean value of team leadership is 3.67, which is in the middle level. The overall average of leadership development of college teachers is 3.68, which is in the middle level. As shown in the table below.

**Table 7** Descriptive analysis result

| Variable | Sample size (PCS) | Minimum (min) | Maximum (min) | Average (points) | Standard deviation |
|---|---|---|---|---|---|
| moral leadership | 317 | 1 | 5 | 4.36 | 0.58 |
| teaching leadership | 317 | 1 | 5 | 4.16 | 0.50 |
| research leadership | 317 | 1 | 5 | 3.26 | 0.63 |
| team leadership | 317 | 1 | 5 | 3.67 | 0.66 |
| environmental factor | 317 | 1 | 5 | 3.60 | 0.81 |
| teacher leadership | 317 | 1 | 5 | 3.68 | 0.49 |

### 3.3.3 Correlation analysis

The five factors of environmental factors, team leadership, scientific research leadership, teaching leadership and moral leadership respectively show a significant level of 0.01, and the correlation value is greater than 0.3, indicating that these five factors have a significant positive correlation with the leadership of college teachers. That is to say, these five factors are closely related to the leadership of college teachers. As shown in the table below

**Table 8** Correlation analysis result

| Variable | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| teacher leadership | 1 | | | | | |
| environmental factor | $0.462^{***}$ | 1 | | | | |
| team leadership | $0.82^{***}$ | $0.487^{***}$ | 1 | | | |
| research leadership | $0.857^{***}$ | $0.424^{***}$ | $0.66^{***}$ | 1 | | |
| teaching leadership | $0.83^{***}$ | $0.327^{***}$ | $0.535^{***}$ | $0.576^{***}$ | 1 | |
| moral leadership | $0.803^{***}$ | $0.408^{***}$ | $0.618^{***}$ | $0.472^{***}$ | $0.657^{***}$ | 1 |

Note: ***, ** and * represent significance levels of 1%, 5% and 10% respectively

## Research Results

On the basis of qualitative and theoretical research, this study builds a theoretical framework model for the leadership development of university teachers, and makes a comprehensive and specific exploration of the designed model through quantitative research methods, and draws the following conclusions.

1. Based on the qualitative research method of grounded theory, this paper collects information and data related to the research through interaction with the research objects under natural circumstances, and analyzes the data through the qualitative analysis software Nvivo12. Through three steps: open coding, spindle coding and selective coding, This paper summarizes the development of college teacher leadership into four dimensions: moral leadership, teaching leadership, scientific research leadership and team leadership, and constructs a theoretical analysis framework model of college teacher leadership.

2. On this basis, this paper analyzes the leadership development of university teachers through a large sample questionnaire, and further verifies the four-dimensional model of leadership development of university teachers through the reliability and validity of the questionnaire as well as exploratory factor analysis, descriptive analysis and correlation analysis.

3. Through the descriptive analysis of the current situation, the development of teachers' moral leadership and teaching leadership in colleges and universities in China is at a relatively high level, which reflects that teachers in colleges and universities have high moral literacy and firm political stance, and are able to fulfill the responsibility of "establishing morality and educating people"; Most teachers can actively participate in the current teaching reform in colleges and universities, and can take the initiative to learn and use modern technology in peacetime teaching. Teachers' teaching is also more favored and recognized by students. The survey shows that teachers' research leadership is in the middle level. This shows that in recent years, compared with the developed countries, although there is still a certain gap in the overall level of scientific research, the emphasis on scientific research and scientific research strength are improving. At the same time, the team leadership development of college teachers is in the middle level, and college teachers are still lacking in team development awareness and team leadership ability. To some extent, this is related to teachers' habit of personal development and independent view of success, but at the same time, it also reflects that most colleges and

universities in our country still lack the atmosphere of teacher peer cooperation development, and the task of teacher team leadership improvement is urgent and arduous. The correlation analysis of the leadership development of university teachers proves that there is a significant correlation between moral leadership, scientific research leadership, teaching leadership, team leadership and the development environment of teacher leadership. This shows that the four dimensions of the leadership content of college teachers are related and mutually promoting, and the environment of leadership development plays an important role in the leadership development of college teachers.

## Suggestions

### 1. Suggestions on the development of moral leadership of college teachers

1.1 Strengthen the study of teachers' ethics and norms, and establish their sense of responsibility for moral leadership.

1.2 Strengthen the assessment of teachers' ethics in colleges and universities to provide an institutional basis for the development of teachers' moral leadership

1.3 Pay attention to setting up a good example of teachers' ethics and give play to the role of peer leadership

1.4 Promote the development of moral leadership by improving the self-cultivation of college teachers

### 2. Suggestions on teaching leadership development of college teachers

2.1 Promote the renewal and transformation of the "teaching and academic" concept of college teachers

2.2 Promote the comprehensive improvement of teaching ability of college teachers

2.3 Strengthen the development and construction of college teachers' teaching organizations

### 3. Suggestions on research leadership development of university teachers

3.1 Establish college teachers' consciousness of leading scientific research and enhance teachers' sense of responsibility for promoting social and economic development

3.2 Enhance the ability of university teachers to transform scientific research achievements to promote national social and economic development

3.3 Give full play to the leading and exemplary role of college teachers in students' scientific research practice

3.4 Universities should provide more perfect policy support for the development of teachers' research leadership

4. Suggestions on leadership development of university teachers' teams

4.1 Train college teachers to establish the correct concept of "team leadership"

4.2 Take "relational leadership model" as the guiding framework to improve the team leadership skills of college teachers

4.3 Based on the construction of professional learning community, strengthen the team leadership practice of college teachers.

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