

Influence of School Administrators' Transformational Leadership on the Innovation Ability of University Teachers

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Abstract: With the development of higher education, the improvement of teachers' innovation ability has become an important issue. This article aims to explore the impact of transformational leadership of school administrators on the innovative ability of college teachers. Through literature review and empirical research, we analyze the difficulties and challenges faced by school administrators in improving teachers' innovation capabilities and propose effective countermeasures. The results show that transformational leadership demonstrates significant value and positive impact in higher education. Its core characteristics include being visionary, inspiring, focusing on individual and team growth, and driving organizational change. Transformational leadership plays a role in stimulating teachers' innovative thinking, promoting organizational changes, creating a positive organizational culture, and establishing effective communication mechanisms, which effectively promotes the improvement of university teachers' innovative capabilities. The composition of teachers' innovative ability involves three aspects: teaching, scientific research and practice, and is affected by multiple factors such as individuals, organizations and society. In order to improve teachers' innovation ability, these factors need to be comprehensively considered and targeted measures and support need to be adopted. There are differences in the perception and identification of transformational leadership among university teachers, which may be related to factors such as personal background, organizational culture and external environment. Strengthening communication and exchanges with teachers, establishing a fair and transparent incentive mechanism and evaluation system, providing sufficient resources and support, and advocating an open and inclusive organizational culture are key measures to enhance perception and recognition. In different subject areas and types of universities, the application of transformational leadership needs to be tailored to local conditions. Develop targeted change strategies based on the different characteristics of science and engineering, humanities and social sciences, and the differences between research-oriented and teaching-oriented universities. Finally, transformational leadership has a positive impact on teachers' professional development, including promoting professional growth, increasing career satisfaction, and increasing intention to stay. However, during implementation, attention should be paid to possible differences in effects due to differences in context and conditions. Therefore, higher education institutions should strengthen the cultivation and introduction of transformational leadership to help teachers achieve better development and satisfaction at different levels.

Keywords: School Managers; Transformational Leadership; College Teachers; Innovation Ability.

1. Introduction

In today's educational environment, innovation has become a key factor in promoting the development of higher education. As an important force in the creation, dissemination and application of knowledge, university teachers' innovation ability plays a vital role in the development and competitiveness of educational institutions. However, how to stimulate teachers' innovative potential and improve their innovation ability is an important issue facing the field of higher education. Transformational leadership, with its unique leadership style and forward-looking vision, is considered an effective way to improve the innovative ability of university teachers.

Transformational leadership emphasizes that leaders should stimulate employees' creativity and promote organizational changes to adapt to changes in the external environment. This leadership style encourages teachers to try new teaching methods and ideas, promote the development of academic research, and improve the quality of education. In today's rapidly changing society, higher education faces many challenges, such as technological developments, changes in

teaching methods, and the need for interdisciplinary collaboration. Traditional leadership and management methods may no longer be able to meet current needs, and more innovative leaders are needed to promote the development of education.

The innovative ability of university teachers is the key to achieving outstanding results in education, scientific research and social services. However, the traditional education system is often too conservative and lacks effective support for teachers' innovative abilities. In this context, the importance of transformational leadership comes to the fore. Transformational leaders can provide teachers with more autonomy and support, stimulate their innovative potential, and promote the advancement of educational teaching and research.

From a teacher's perspective, the introduction of transformational leadership can provide them with more opportunities and incentives to try new teaching methods and ideas. Under the guidance of transformational leadership, teachers can more actively participate in academic exchanges, collaborations and interdisciplinary research, thereby improving their own innovation capabilities and academic

standards. At the same time, transformational leadership can also provide teachers with more resources and support to help them overcome obstacles in the innovation process and achieve higher innovation results.

In addition, transformational leadership can promote a change in organizational culture and create an atmosphere that is more open, inclusive, and supportive of innovation. In such an environment, teachers can more freely use their creativity and imagination to promote innovative development in education, teaching and academic research. At the same time, changes in organizational culture will also help improve the competitiveness and reputation of universities and attract more outstanding talents and resources.

In order to better play the role of transformational leadership in improving the innovation ability of university teachers, future research can be carried out from many aspects. First, we will delve into the specific strategies and measures of transformational leadership to better guide leaders in their application in practice. Secondly, study innovative practices and outcomes under transformational leadership in different subject areas and different types of universities to provide more targeted guidance. In addition, attention should also be paid to the joint impact of teachers' personal characteristics and organizational environment on innovative capabilities to develop more comprehensive improvement strategies.

In short, transformational leadership plays an important role in improving the innovation ability of university teachers. Through in-depth research and exploration of specific strategies and practical methods of transformational leadership, we can better stimulate the innovative potential of teachers and promote the development and innovation of higher education. This not only helps improve the quality and competitiveness of education, but also makes greater contributions to the development and progress of society. Research on female leadership is a hot topic in current academic circles. Although China's exploration in this field is still in its early stages, it has made significant progress. This study on female leadership of university teachers will help improve the leadership capabilities of this group, promote the development of female teachers themselves, and benefit universities and society. Studying the growth of female leadership in higher education from a gender perspective can help provide a more complete understanding of this unique group of female leaders. It also contributes to the overall understanding of women's careers, helps change traditional feudal ideologies associated with patriarchal power dynamics and male superiority, and further advances the Marxist view of women [2]. In addition, it enriches leadership theory, deepens the understanding of female leadership, and promotes the continuous improvement and development of leadership theory and disciplines.

The practical significance of improving women's leadership capabilities and standards extends to society. Women have a sacred responsibility in giving birth to life and procreating future generations for mankind and deserve more attention. The proportion and structure of female leading cadres are important indicators that reflect a country's modernization and scientific and civilized development. Female leaders in colleges and universities must not only have high-level organizational, coordination, and planning abilities, but also have strong scientific decision-making abilities. The effective improvement of women's leadership capabilities has positive and practical significance for alleviating gender discrimination against women, promoting

the sustainable development of women's careers, enhancing the social identity of contemporary female leaders, and creating promotion opportunities.

At the same time, in organizational management, female leaders' characteristics such as friendliness, meticulousness, and empathy play a decisive role. Understanding the components and influencing factors of female teachers' leadership in colleges and universities, combined with the specific characteristics of female teachers, and comprehensively improving their leadership capabilities will contribute to gender equality in higher education management. Female university leaders are outstanding examples of intellectual women, representing self-esteem, self-confidence and continuous self-improvement. Not only have they made significant contributions to the development of higher education, but they also embody the unique connotation of female leadership with their tenacity, resilience and selfless dedication. For most women, these leaders are educational role models and female role models who embody exemplary values.

To sum up, female leadership is becoming more and more influential around the world, but it also faces various challenges and obstacles. By studying female leadership among university teachers, there is an opportunity to improve the ability and level of female leadership and promote gender equality and sustainable social development. Understanding and paying attention to female leadership not only helps to change traditional patriarchal concepts, but also promotes the development and improvement of leadership theories and disciplines. Therefore, it is necessary to further strengthen research and practical work on female leadership and create more opportunities and space for women's career development and advancement.

2. Statement of the Problem

This study aimed to gain an in-depth understanding of teachers' assessments of school administrators' transformational leadership and its impact on innovativeness by analyzing the respondents' profiles and exploring their perceptions of leadership behavior and innovativeness. First, the study focused on the demographic characteristics of the respondents, including gender, age, education level, and years of teaching, to paint an overall picture of the respondents. Secondly, by assessing the interviewees' views on the transformational leadership of school administrators, including aspects such as idealized influence, inspiring motivation, intellectual stimulation and individual attention, to gain a comprehensive understanding of the interviewees' perceptions of leadership style. Subsequently, whether there are significant differences in teachers' evaluations of school administrators' transformational leadership was explored by considering profile as a test factor. Further, the study focused on teachers' assessment of the impact of managers' transformational leadership on innovative abilities, including critical thinking, creativity, collaboration, and problem solving. Likewise, it is explored whether there are significant differences in innovativeness by considering the profiles of student respondents as test factors. Next, the study explores whether there is a significant relationship between transformational leadership of school administrators and teachers' innovative abilities. Finally, the study proposes suggestions and measures to improve existing programs to address the problems identified in the study, emphasizing the importance of transformational leadership by school

administrators to teachers' innovative abilities. This research not only provides profound insights into the field of education, but also provides useful suggestions for formulating future strategies to improve the level of educational innovation.

3. Scope and Delimitation of the Study

Research may involve university teachers of varying disciplines, levels and levels of experience. The study could cover different groups of teachers to gain a comprehensive understanding of the impact of transformational leadership on innovative abilities. It delves into the components of transformational leadership (individualized consideration, intellectual stimulation, inspirational motivation, idealized influence) and explores how each component contributes to the ability to innovate. The research can examine a range of innovations, including teaching methods, research methods, collaborations and contributions to institutional development. Exploring different types of innovation provides a holistic perspective. It can also assess innovative capabilities using a variety of indicators, such as publication record, adoption of innovative teaching methods, participation in interdisciplinary projects, and implementation of new strategies within the institution.

Additionally, the results of this study may vary depending on the study context and participants, limiting its generalizability to other universities or regions. While research can establish correlations, it can be challenging to clearly establish a causal relationship between transformational leadership and innovative capabilities due to the complexity of organizational dynamics. Some aspects of the study, such as perceptions of transformational leadership and innovativeness, may have relied on self-reported data, which may introduce subjectivity and potential bias.

Furthermore, the study may not have adequately considered external factors (e.g., economic conditions, institutional policies) that may influence transformational leadership and innovation capabilities. Differences in disciplinary culture and academic focus may influence how transformational leadership affects innovativeness, but these differences may not be fully explored within the scope of the study. Research may also focus on short- or medium-term effects, but the long-term effects of transformational

leadership on the ability to sustain innovation may be more difficult to capture.

Finally, limitations of time, resources, and participant access may affect the comprehensiveness of the study and the number of participants. There is also a quantitative bias, where research may be biased towards quantitative data, potentially limiting the depth of understanding of participants' experiences and perceptions

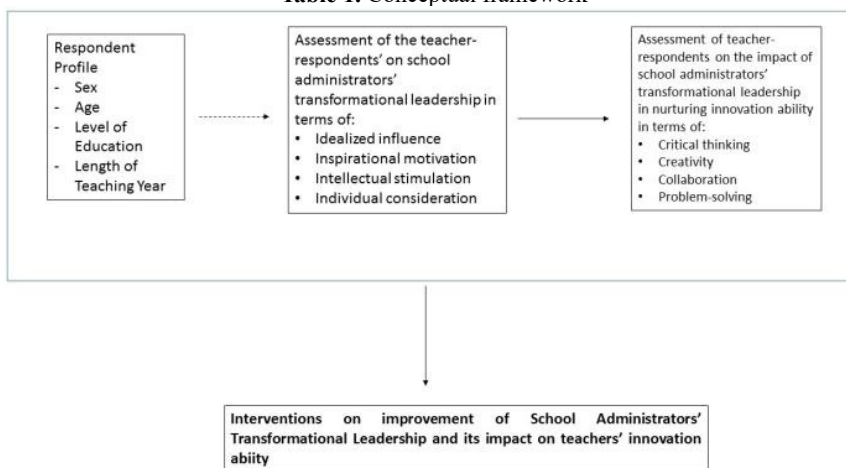
4. Theoretical Framework

The theoretical framework for studying the impact of transformational leadership on university teachers' innovative abilities draws on a variety of theories and concepts in the fields of educational leadership, organizational behavior, and innovation management. The framework provides a structured basis for understanding the relationships, interactions, and mechanisms underlying the phenomena under investigation. One possible theoretical framework could include the following key components:

Transformational Leadership Theory: Transformational leadership theory was originally proposed by James MacGregor Burns and further developed by Bernard M. Bass and is its core theory Base. The theory posits that transformational leaders achieve extraordinary results by using visionary and motivational strategies to inspire and inspire followers. The components of transformational leadership—individualized consideration, intellectual stimulation, inspirational motivation, and idealized influence—provide a lens through which leadership behaviors that influence innovative capabilities can be examined.

Innovation theory: This framework draws on innovation theories such as innovation diffusion theory and innovation process theory to highlight the multidimensionality of innovation capabilities. It involves generating novel ideas, implementing them effectively, and disseminating them to create meaningful impact. These theories help to situate innovation within an academic context, recognizing that innovation in higher education is not limited to technological advances but also includes teaching methods, research, and institutional development.

Table 1. Conceptual framework



Social Exchange Theory: Social exchange theory provides insights into the dynamics of relationships between leaders and followers. It explains how transformational leaders build

positive exchange relationships by providing support, empowerment, and recognition in exchange for increased commitment, involvement, and innovative efforts from

university faculty. This theory can shed light on the reciprocal nature of the relationship between transformational leadership and innovative capabilities.

Self-determination theory: Self-determination theory emphasizes the importance of intrinsic motivation and autonomy in driving behavior. In the context of research, this theory helps explain how transformational leadership fosters a sense of ownership, autonomy, and control, thereby enhancing university teachers' intrinsic motivation to engage in innovative activities.

The conceptual framework for the study of the impact of transformational leadership on university teachers' innovative abilities outlines the key concepts, relationships, and variables that will be studied. It visually presents the theoretical basis of the study and guides the formulation of research questions, data collection, and analysis. Here is an overview of what a conceptual framework might include:

5. Research Object

The research object of this topic is "university teachers". Specifically, the research focuses on how university faculty's innovative abilities are affected by transformational leadership in higher education settings. In the context of rapid education development, the innovative ability of university teachers is crucial to improving the quality of education, promoting academic research progress, and adapting to changing educational needs. As a forward-looking leadership style that stimulates creativity, transformational leadership is considered to have a potential positive impact on stimulating the innovative ability of university teachers.

6. METHODOLOGY

6.1. Research Design

The quantitative descriptive correlational research method selected for this study is well suited to assess the impact of transformational leadership of school administrators on the innovative potential of university professors. This design is particularly useful because it allows examination of connections and variable descriptions within a structured framework, thereby allowing examination of potential correlations between the two main variables of interest. The study's quantitative techniques attempted to provide objective and measurable data, limiting the potential for response bias and ensuring a thorough assessment of the research topic.

Descriptive correlation methods are particularly effective in this context because of their emphasis on identifying correlations between variables. The main goal of this study is to analyze the possible relationship between the leadership style of school administrators and the innovative abilities of university professors. This design is non-invasive and does not require any experimental manipulations, making it ideal for studying naturally occurring phenomena in educational settings. Furthermore, its data collection is efficient and can include a large sample of university lecturers, thus increasing the generalizability of the findings.

Nonetheless, it is crucial to recognize the limitations of descriptive correlational methods. While this study can reveal connections between variables, it cannot conclusively prove that one variable causes a change in another. Therefore, when interpreting results, care should be taken to explore potential third factors or alternative explanations for the observed associations. Additionally, because the study is based on self-reported data, there is the potential for self-report bias, and

respondents may provide socially desirable answers or have different views on leadership and innovation, thus affecting the validity of the study results. Efforts should be made to reduce such biases through careful questionnaire design and a commitment to participant confidentiality. Overall, the quantitative description-related approach used provides a systematic and effective strategy for the research question investigating the impact of transformational leadership on the creative potential of university teachers, while acknowledging its inherent limitations.

In addition, interviews will be conducted to obtain complementary data for the study, namely data from the managers themselves, i.e. their observations of their practices and their perceptions of how they carry out their respective responsibilities.

Stratified sampling is a method of dividing a population into different classes or groups based on specific characteristics, such as academic rank and subject. Within each stratum, participants will be randomly selected in proportion to the size of the stratum. This approach ensured that the sample represented the diversity of the population, which is particularly important when studying the impact of transformational leadership on the innovative abilities of university faculty. By using stratified sampling, the study was able to capture participants from different subgroups, allowing for a more comprehensive analysis that takes into account differences in academic ranking, discipline, and other relevant characteristics.

The choice of sampling technique is a key decision in research and is influenced by factors such as research objectives, available resources and the level of representativeness required. In this study, a combination of stratified and random sampling was found to be effective. This approach ensures not only diversity in participant selection but also randomization, which is critical to maintaining the internal and external validity of the study.

6.2. Research Participants

Participants in this study are individuals who will actively participate as respondents in this study. In the case of studying the impact of transformational leadership on university teachers' innovative abilities, the participants were university teachers who provided data for the study. Administrators from each of the different colleges will also be interviewed. Their responses will serve as support for the possible outcomes for teachers.

6.3. Research Instruments

The research instrument used to collect data in this study was a questionnaire consisting of three distinct sections designed to gather comprehensive insights into the relationship between transformational leadership of school administrators and innovative abilities of university teachers. The profile section served as the introductory part of the questionnaire and collected demographic information from the participants, including details such as age, gender, academic rank, department or discipline, and years of teaching experience. This section provides context for understanding the study participant characteristics, which will be critical for later analysis and interpretation. Another section of the questionnaire was dedicated to assessing participants' perceptions of the transformational leadership style exhibited by school administrators. It includes a series of carefully designed projects that explore various dimensions

of transformational leadership such as inspirational motivation, intellectual stimulation, individualized consideration and idealized influence. Respondents were asked to rate these items on a Likert scale, typically ranging from strongly disagree to strongly agree, reflecting their observations and experiences with school administrators. The third part of the questionnaire explores in depth the impact of transformational leadership of school administrators on the innovative ability of university teachers. This section includes items that explore how respondents perceive their managers' leadership to influence their own innovation behaviors, attitudes, and outcomes. Again, respondents were asked to rate these items on a Likert scale to provide a quantitative assessment of perceived impact. Additionally, qualitative analysis will be applied. This analysis allowed the researchers to explore the nuances and complexities of participants' experiences related to transformational leadership and innovativeness. By following a systematic approach and ensuring analytical rigor, meaningful insights can be gained that enrich the understanding of the research topic. Transcribed interviews or textual data collected from open-ended survey questions related to transformational leadership and innovation capabilities will be used. Researchers will then analyze the transcripts to gain insight into the participants' perspectives. The researcher will then apply open coding to identify initial concepts, themes, or patterns in the data. This involves breaking the text into meaningful units and assigning descriptive labels to these units. Finally, the researcher will refine and develop themes by examining the coded data for each category and ensure that the themes accurately reflect the participants' perspectives and experiences. The themes and corresponding indicators will then be explained in the context of the research questions and objectives, and their implications for understanding the impact of transformational leadership on university teachers' innovative abilities will be discussed.

6.4. Data Gathering Procedure

Data collection for this study focused primarily on the personal experiences and work situations of the interviewees. The data collection methods were tea-mixing questionnaires and in-depth interviews. Each interviewee prepared an interview outline before the interview. The design of the interview outline includes three steps: Based on the literature review, the researcher will enumerate factors that may affect how university teachers' innovative abilities are affected by transformational leadership, such as personal, family, school, institutional and other factors, surrounding these factors. factors to develop specific interview questions. Think further about the sequence, content, and sentence structure of the interview, and evaluate the wording, content, and form of the questions that may influence the respondent's answers.

With the consent of the interviewee, the interviewer recorded the interview and transcribed the recording verbatim into text. Depending on the needs of the study, at least two rounds of qualitative data collection will be conducted. The second round of data collection will occur after the analysis of the first round of data is completed. The aim is to deepen the understanding of the data collected and to continue the search for possible explanations.

Not only will some necessary simple recordings be made during the interview process, but after each interview, the researcher will make more detailed records and begin to listen to the recordings for verbatim transcription. Summarize and

summarize after transcribing and checking all interviewee recordings

Interviewees' narrative excerpts were summarized in each group based on specific events of personal growth, to present each interviewee's perspective on work and leadership. Afterwards, listen to the recording and try to recall the situation when interviewing the interviewee in person, and try to connect the above content in a first-person manner from the subjective perspective of the interviewee to form each interviewee's unique personal perspective.

After analyzing the different perceptions of how university teachers' innovation capabilities are affected by transformational leadership, the respondents' perspectives or approaches to the same or different issues were further explored. After classification and summary, some prominent, representative or general contents and remarks are excerpted, and data analysis is conducted. When analyzing data, refer to the above concepts and theories as the basis for analyzing the data.

After analyzing the influencing factors of how university teachers' innovation ability is affected by transformational leadership, the researchers used social support networks to conduct an overall analysis from the micro, meso and macro levels, that is, individual university teachers, families, communities, university environments and related the policy and social context of the sector to construct hypotheses for emerging explanations. If something is unclear about something a participant said, or the interpretation based on what the participant said is unclear, you can send a request for verification to verify what he/she meant or your understanding based on that interpretation. Second, there is the common practice of conducting follow-up "confirmatory interviews," which themselves are tools used to validate research findings and verify whether they can be applied to individual participants (Buchbinder, 2011), to identify anomalies or negative examples and re-Assess understanding of a given concept (see details below). Finally, member checking is carried out in the most common form, by sending the interview transcript to the participants, asking them to read it and provide any necessary comments or corrections.

6.5. Data Analysis

The data analysis method for this study was statistical analysis using SPSS V.20 statistical software and the following techniques: Use frequencies and percentages to define the profile of respondents and responses to SOP 1. Use mean and standard deviation to define teachers' assessment of emotional intelligence - Respondents and their impact on effective school leadership. Additionally, the standard deviation will be used to illustrate how individual scores fall relative to the mean. Lower standard deviation values indicate identical answers, while higher numbers indicate different responses. To calculate significant differences in variables and indicators, the T-test for independent samples will be used. To calculate significant differences, the F or ANOVA test will be used. When significant findings were found, post hoc ANOVA tests such as Scheffe and least significant difference were used to determine their significance. Pearson product-moment correlation will be used to infer the association between related variables. The decision criterion for testing the null hypothesis stipulates that a sig value equal to or less than (\leq) the 5% significance level represents a significant finding, and therefore the null hypothesis will be rejected; otherwise, a sig value greater than ($>$) the 5% significance

level indicates that there is no significant finding. found, so the null hypothesis will be accepted.

6.6. Ethical Considerations

The research procedures of this study were guided by ethical issues, which played a crucial role. To safeguard the integrity and well-being of our participants and our research, we adhere to several basic ethical rules. Explicit consent will be obtained from all respondents participating in the study before the study begins. Participants will receive comprehensive and accurate information about the study's purpose, methods, and any strengths or weaknesses. Respondents will be asked to voluntarily agree to participate in the study and strict measures will be taken to ensure confidentiality throughout the study. The researchers will ensure that the identities of participants will not be disclosed in any reports, findings, or related publications. Participants will be assured that their responses to the interview will be kept confidential.

Furthermore, the study adheres to the concept of kindness. All possible measures will be taken to mitigate any potential adverse effects or discomfort experienced by subjects. The survey instrument used for data collection was carefully designed to ensure few distractions and reflect consideration of respondent time and schedules. Protection of privacy and confidentiality are considered important ethical principles. Data obtained from respondents will be anonymized and aggregated so that research conclusions do not contain identifying information about any specific individual. This measure will ensure the confidentiality of the interviewees and protect them from possible consequences. Protect research data by complying with data protection regulations and standards. Researchers will ensure the secure storage and transmission of research data to prevent unauthorized access or disclosure.

Researchers will conduct research committed to maintaining integrity and ensuring accuracy. The data analysis and reporting process will be conducted in an objective manner to ensure that the results are free from bias or manipulation. This approach will be adopted to maintain the credibility of the research findings. Researchers will ensure that there is no discriminatory or prejudicial treatment of subjects regardless of gender attributes or affiliations. The participation of men and women from diverse backgrounds and institutions in the selection process demonstrates a strong dedication to promoting fairness and equality.

Finally, the researchers acknowledge the importance of transparency and integrity for the effective dissemination of research findings. Research results will be reported accurately and honestly, with full disclosure of any conflicts of interest or sources of funding.

7. Results and Analysis

7.1. Characteristics and Mechanisms of Transformational Leadership:

Transformational leadership has gradually become a widely recognized leadership style in educational settings. Core characteristics of this leadership style include being visionary, inspiring, focusing on individual and team growth, and driving organizational change.

First, transformational leadership is visionary. They can clearly see future trends and set clear goals for the organization accordingly. This forward-looking vision

provides teachers with clear guidance while inspiring their innovative spirit and willingness to pursue excellence.

Second, transformational leaders are good at inspiring people. They not only inspire teachers with words, but also demonstrate their persistent pursuit of goals through their actions. This kind of enthusiasm and determination can deeply infect and influence teachers, making them more devoted to teaching and research, and striving to pursue higher achievements.

Furthermore, transformational leadership focuses on individual and team growth. They understand each teacher's strengths and needs and work hard to provide resources and opportunities for their personal development. At the same time, they also focus on team building and improve team performance through shared goals and collaborative efforts. This emphasis on individuals and teams provides strong support for improving teachers' innovative abilities.

Finally, transformational leadership drives organizational change. They are not only satisfied with the status quo, but also committed to change and progress. By introducing new teaching methods, research ideas or organizational structures, they promote universities to continuously adapt to changes in the external environment and maintain competitiveness and vitality. This acceptance and promotion of change provides a broad space and stage for teacher innovation.

7.2. The Working Mechanism of Transformational Leadership is Mainly Reflected in the Following Aspects:

First, stimulate teachers' innovative thinking. By providing autonomy and support, transformational leadership encourages faculty to try new teaching and research methods. This relaxed environment stimulates teachers' innovative potential, allowing them to dare to challenge traditions and explore new educational practices.

Second, promote organizational change. Transformational leadership not only focuses on personal development, but is also committed to the progress of the entire organization. They drive organizational change by setting clear goals and providing resources and incentives to enable universities to better adapt to changes in the external environment.

Third, create a positive organizational culture. Transformational leadership focuses on the construction of organizational culture and strives to create an open, inclusive and innovative atmosphere. In such an environment, teachers dare to try and are willing to innovate, and the innovation capabilities of the entire organization are significantly improved.

Fourth, establish an effective communication mechanism. Transformational leaders value communication with teachers, listen to their opinions and suggestions, and jointly formulate and implement decisions. This open and transparent communication method promotes the flow and sharing of information and provides strong support for teachers' innovative activities.

In summary, transformational leadership inspires teachers' innovative thinking, promotes organizational change, creates a positive organizational culture, and establishes effective organizational change through characteristics such as being visionary, inspiring, focusing on individual and team growth, and promoting organizational change communication mechanism. These mechanisms jointly promote the improvement of university teachers' innovative capabilities and provide strong support for the development and

innovation of higher education.

7.3. The Composition and Influencing Factors of Teachers' Innovative Ability:

Teacher innovation ability is one of the most crucial abilities in higher education, which involves many aspects such as teaching, scientific research, and social services. The composition of this ability is multifaceted and affected by many factors.

First of all, teaching innovation ability is an important part of teachers' innovation ability. It includes innovation in teaching content and methods, as well as the ability to guide students to think independently and innovate. Specifically, teachers need to have an in-depth understanding of subject knowledge, combine students' needs and characteristics, and use diversified teaching methods and means to improve students' learning interest and effectiveness. At the same time, teachers also need to pay attention to students' learning process, encourage students to ask questions, explore and try, and cultivate their innovative thinking and practical abilities. In order to improve teaching innovation capabilities, teachers need to continuously learn and master new educational concepts and technologies, understand the dynamics of subject development, and update teaching content and methods in a timely manner.

Secondly, scientific research innovation ability is also an important aspect of teachers' innovation ability. It involves teachers' quality and ability to conduct scientific research, including topic selection, research design, experimental operations, data analysis and other aspects. Teachers' scientific research and innovation capabilities not only depend on their personal academic background and knowledge reserves, but are also affected by factors such as the academic environment, research team, and resource support. In order to improve scientific research and innovation capabilities, teachers need to actively participate in academic exchanges, collaborative research and other activities, share experiences and resources with peers, and promote academic progress.

In addition to teaching and scientific research innovation ability, practical innovation ability is also an important aspect of teachers' innovation ability. It involves teachers' ability to apply theoretical knowledge to practical problems and practice teaching. Teachers' practical innovation ability is reflected in cooperation with enterprises, communities, etc. to carry out practical teaching and guide students to participate in practical activities. In order to improve practical innovation capabilities, teachers need to pay attention to industry development and market demand, cooperate with enterprises to carry out project research and practical teaching, and also need to have interdisciplinary knowledge and abilities to deal with the complexity and diversity of practical problems.

The formation and development of teachers' innovative abilities are affected by many factors. In terms of personal factors, teachers' awareness of innovation, curiosity, critical thinking, and problem-solving abilities are all key factors that affect innovation ability. At the same time, teachers' personality characteristics, emotional intelligence, etc. will also have an impact on innovation ability. For example, a positive, optimistic and perseverant personality can better cope with challenges and pressures in the innovation process; emotional intelligence that is good at understanding and communicating can help establish good interpersonal relationships and promote the exchange and collision of

innovative ideas.

In terms of organizational factors, university teachers' working environment, academic atmosphere, resource allocation, etc. will also have an impact on teachers' innovative ability. An open, inclusive, and innovative academic atmosphere can provide teachers with more innovation opportunities and resources; complete scientific research facilities, academic exchange platforms and other resource allocations can enhance teachers' scientific research and innovation capabilities; reasonable incentive mechanisms and evaluation systems can stimulate Teachers' innovative drive and enthusiasm.

In terms of social factors, policy environment, social culture, etc. will also have an impact on teachers' innovative ability. The government's scientific research policies, education policies, etc. can guide and promote teachers' innovative activities; society's emphasis on education and evaluation of the teaching profession will also affect teachers' willingness and motivation to innovate.

To sum up, teachers' innovation ability is composed of many aspects, including teaching innovation ability, scientific research innovation ability and practical innovation ability. At the same time, the formation and development of teachers' innovative abilities are affected by personal factors, organizational factors and social factors. In order to improve teachers' innovation ability, these factors need to be comprehensively considered and measures should be taken from multiple aspects to support and motivate.

7.4. University Teachers' Perception and Identification of Transformational Leadership:

In higher education, transformational leadership is becoming a mainstream leadership style. In order to gain an in-depth understanding of the current situation of university teachers' perception and recognition of transformational leadership, this article conducted the following analysis.

First, most university faculty have positive attitudes toward transformational leadership. They believe that transformational leadership can provide clear vision and goals, encourage innovation and change, and provide impetus for organizational development. Under the guidance of transformational leadership, teachers feel that their work is more meaningful, are more involved in teaching and scientific research, and achieve better results.

However, there are also some teachers who have reservations about transformational leadership. They believe that transformational leadership style may bring instability and uncertainty, making teachers face greater work pressure. At the same time, some teachers believe that transformational leadership places too much emphasis on personal worship and emotional connection, resulting in a lack of objectivity and scientificity in the decision-making process. In addition, some teachers also worry that transformational leadership will pursue short-term benefits too much and ignore the long-term development of the organization.

In terms of degree of identification, some teachers expressed a high degree of identification with the concepts and methods of transformational leadership. They believe that transformational leadership can promote the mutual growth of individuals and organizations and improve the quality of education. These teachers actively participate in organizational change activities and strive to achieve common goals. However, there are also some teachers who

have low identification with transformational leadership. They believe that this leadership style is inconsistent with their own values and career development goals, or they are skeptical about the actual effectiveness of transformational leadership.

Generally speaking, there are certain differences in university teachers' perception and identification of transformational leadership. This difference may be related to factors such as teachers' personal background, organizational culture, and external environment. Some teachers believe that transformational leadership can promote mutual development of individuals and organizations, while others have reservations or doubts about it.

In order to better enhance the perception and recognition of university teachers, it is recommended to take the following measures: First, strengthen communication and communication with teachers, understand their needs and expectations, and improve the matching between leadership style and teachers' needs. Secondly, establish a fair and transparent incentive mechanism and evaluation system, encourage teachers to participate in the organization's decision-making and management, and enhance their sense of belonging and identification with the organization. In addition, provide adequate resources and support to help teachers cope with the challenges and pressures that come with change. Finally, we advocate an open and inclusive organizational culture, encourage cooperation and exchanges among teachers, and promote the emergence of innovative thinking and practice.

To sum up, there are certain differences in university teachers' perception and identification of transformational leadership. In order to better enhance teachers' perception and recognition, it is necessary to strengthen communication and communication, establish a fair and transparent incentive mechanism and evaluation system, provide sufficient resources and support, and advocate an open and inclusive organizational culture. Through the implementation of these measures, the innovation ability and overall quality of university teachers can be promoted, and greater contributions can be made to the sustainable development of higher education.

7.5. The Application of Transformational Leadership in Different Subject Areas and Types of Universities

In higher education, transformational leadership has proven to be an effective leadership style that inspires faculty innovation and drives organizational change. However, there may be differences in the need for and application of transformational leadership across subject areas and types of institutions. This article aims to analyze the specific practices and effects of transformational leadership in different situations and provide targeted guidance for different types of universities.

First of all, in terms of subject areas, the teaching and scientific research characteristics of different subjects have different requirements for teachers' innovative abilities. For example, the fields of science and engineering usually focus more on experiments, data analysis, and innovative research, while the fields of humanities and social sciences focus more on theoretical construction, critical thinking, and research on social issues. Therefore, transformational leadership needs to adopt different strategies according to the characteristics of the discipline during its application. For science and

engineering fields, transformational leadership needs to provide sufficient resources and support, encourage teachers to conduct experiments and research, and promote the transformation and application of scientific and technological achievements. In the field of humanities and social sciences, transformational leadership needs to pay attention to social issues and cultural inheritance, guide teachers to conduct in-depth research on humanities phenomena and social development laws, and cultivate their interdisciplinary thinking and innovation capabilities.

Secondly, in terms of types of universities, different types of universities have differences in terms of school positioning, teaching staff and resource conditions. Therefore, during the application process of transformational leadership, different strategies need to be adopted according to the characteristics of the type of colleges and universities. For research-oriented universities, due to their relatively high educational orientation and relatively high teaching staff, transformational leadership needs to pay more attention to guiding teachers to carry out high-level scientific research innovation, promote interdisciplinary and academic exchanges, and enhance the school's overall scientific research level and international influence. For teaching-oriented universities, due to their relatively low school-running positioning and resource conditions, transformational leaders need to pay more attention to teaching innovation and the cultivation of practical abilities, and encourage teachers to adopt diversified teaching methods and means to improve students' learning interests and practical abilities. At the same time, it is also necessary to pay attention to the professional development and training needs of teachers and improve the overall quality and ability level of teachers.

Finally, compare the specific practices and effects of transformational leadership in different situations. In practice, some colleges and universities have successfully applied transformational leadership to improve teachers' innovative abilities. For example, some research universities support teachers in scientific research and innovation by setting up innovation funds, providing experimental equipment and interdisciplinary cooperation platforms; some teaching universities promote teachers' teaching by conducting teaching competitions, organizing teaching observations and establishing teaching teams. Communicate and grow. These practices show that transformational leadership has application value in different subject areas and types of universities, but the specific implementation methods and effects may vary depending on the situation.

In summary, transformational leadership has application value in different subject areas and types of universities. In order to better enhance teachers' innovative capabilities, different types of universities need to adopt targeted strategies based on their own characteristics and needs. At the same time, it is also necessary to strengthen practical exploration and experience summary, and continuously improve the implementation methods and effect evaluation system of transformational leadership.

7.6. Transformational Leadership and Teacher Professional Development

In the field of higher education, teachers' professional development is one of the key factors to improve the quality of education. Teachers' professional growth, career satisfaction and willingness to stay directly affect their teaching and scientific research performance, which in turn

affects the development of the entire school. In recent years, transformational leadership has become a leadership style that has received widespread attention, and its impact on teachers' professional development has also attracted much attention.

First, transformational leadership has a significant impact on teachers' professional growth. Transformational leaders are good at discovering and stimulating teachers' potential, and encourage them to continuously learn and explore new teaching methods and knowledge. Under such leadership, teachers will not only take the initiative to improve their subject knowledge, but also actively learn educational techniques to improve teaching effectiveness. At the same time, transformational leadership will also provide teachers with more training and learning opportunities, promote them to conduct academic exchanges and collaborative research, thereby accelerating teachers' professional growth.

Secondly, transformational leadership has a positive impact on teachers' professional satisfaction. This leadership style emphasizes respect and trust in teachers, giving them more autonomy and opportunities to participate in decision-making. In such a working environment, teachers will feel that their work is valued and supported, resulting in higher professional satisfaction. In addition, transformational leaders often provide positive feedback and incentives to recognize teachers' achievements and contributions, further enhancing their professional satisfaction.

Finally, transformational leadership also has a positive impact on teachers' intention to stay. Teachers who work in an environment that supports their own growth and gives themselves respect and trust are more likely to develop a strong sense of belonging and loyalty. Schools under this leadership style often have a good organizational culture and atmosphere and are able to attract and retain excellent teachers. In addition, transformational leadership will also provide teachers with better professional development opportunities and resource support, giving them higher expectations and confidence in their future development, thereby enhancing their willingness to stay.

However, it is important to note that transformational leadership is not a panacea. The effect may vary under different situations and conditions. For example, for some teachers who already have strong professional abilities and self-confidence, transformational leadership may not be necessary, and may even bring some unnecessary pressure and interference. In addition, if the motivation and support of transformational leadership are insufficient, or deviations occur during implementation, it may also have a negative impact on teachers' professional development.

In summary, transformational leadership has a positive impact on teachers' professional development. It can promote teachers' professional growth, increase career satisfaction, and enhance intention to stay. Therefore, higher education institutions should strengthen the cultivation and introduction of transformational leadership and strive to create an environment and atmosphere that supports the professional development of teachers. At the same time, it is necessary to further study the specific practice and effects of transformational leadership in different situations and continuously improve its theoretical and practical system.

7.7. Difficulties and Challenges Encountered by the Transformational Leadership of School Managers on the Innovative Ability of College Teachers

The gap between concept and practice: Although transformational leadership encourages innovation, various obstacles may be encountered in the actual implementation process. On the one hand, some teachers may be unwilling to accept new innovative ideas due to traditional thinking inertia or resistance to change. On the other hand, even if teachers are willing to innovate, they may have difficulty transforming innovative ideas into practice due to a lack of specific implementation methods and resources.

Constraints of organizational culture: The organizational culture within universities also has an important impact on the improvement of innovation capabilities. If the organizational culture is conservative, rigid, and lacks the spirit of openness, tolerance, and risk-taking, then even with the promotion of transformational leadership, it will be difficult to stimulate teachers' innovative abilities.

Challenges in the evaluation system: The existing teacher evaluation system often focuses on traditional academic achievements, such as the number of published papers, the grade of journals, etc., but lacks effective evaluation standards for innovation capabilities, practical achievements, etc. This evaluation system will restrict teachers' pursuit of innovation, causing them to be more inclined to pursue short-term academic results rather than long-term innovation ability development.

Insufficient resources and support: Innovation requires a large amount of resource support, including human, material and financial resources. If school administrators cannot provide sufficient resources, or there is unfair resource allocation, the development of teachers' innovative abilities will be limited. In addition, the lack of professional training and guidance can also make teachers feel confused and helpless in the innovation process.

Risks and pressures of change: Transformational leadership means change, and change itself means risks and pressures. For teachers, they may worry about the negative consequences of failed changes, such as affecting their career development and damaging academic reputation. This concern may prevent them from actively engaging in innovative activities.

Barriers to communication and collaboration: Effective communication and collaboration are critical in driving innovation. If there are communication barriers between administrators and teachers, and between teachers and teachers, it will be difficult to effectively transmit and implement innovative ideas and practices.

Uncertainty in the external environment: Colleges and universities are in a complex and ever-changing external environment, including policy changes, market demands, technological updates, etc. These uncertainties may bring challenges to the development of teachers' innovative abilities. For example, policy changes may affect school resource allocation, changes in market demand may affect the development direction of disciplines, and technological updates may change teaching methods and means.

Differences in individual factors: Individual differences among teachers will also have an impact on innovation ability. Some teachers may have a higher acceptance and execution ability for innovation due to their own knowledge structure,

skill level or personality characteristics. On the contrary, other teachers may be deficient in this area and need more support and coaching.

To sum up, school administrators face many difficulties and challenges when improving the innovation capabilities of college teachers through transformational leadership. Effectively addressing these challenges requires in-depth analysis of specific situations, development of targeted strategies and methods, and continuous attention and adjustment of the implementation process.

8. Conclusion

Transformational leadership has demonstrated significant value and positive impact in higher education. Its core characteristics include being visionary, inspiring, focusing on individual and team growth, and driving organizational change. Transformational leadership plays a role in stimulating teachers' innovative thinking, promoting organizational changes, creating a positive organizational culture, and establishing effective communication mechanisms, which effectively promotes the improvement of university teachers' innovative capabilities. The composition of teachers' innovative ability involves three aspects: teaching, scientific research and practice, and is affected by multiple factors such as individuals, organizations and society. In order to improve teachers' innovation ability, these factors need to be comprehensively considered and targeted measures and support need to be adopted. There are differences in the perception and identification of transformational leadership among university teachers, which may be related to factors such as personal background, organizational culture and external environment. Strengthening communication and exchanges with teachers, establishing a fair and transparent incentive mechanism and evaluation system, providing sufficient resources and support, and advocating an open and inclusive organizational culture are key measures to enhance perception and recognition. In different subject areas and types of universities, the application of transformational leadership needs to be tailored to local conditions. Develop targeted change strategies based on the different characteristics of science and engineering, humanities and social sciences, and the differences between research-oriented and teaching-oriented universities. Finally, transformational leadership has a positive impact on teachers' professional development, including promoting professional growth, increasing career satisfaction, and increasing intention to stay. However, during implementation, attention should be paid to possible differences in effects due to differences in context and conditions. Therefore, higher education institutions should strengthen the cultivation and introduction of transformational leadership to help teachers achieve better development and satisfaction at different levels.

9. Recommendations

1. In response to the difficulties and challenges that school administrators encounter when improving the innovation ability of college teachers through transformational leadership, the following effective countermeasures should be taken:

2. Strengthen concept promotion and training to ensure that teachers deeply understand the importance of innovation and master the methods and tools for implementing innovation.

3. Create an open and inclusive organizational culture,

encourage teachers to have the courage to try and take risks, and provide a relaxed environment for innovation.

4. Reform the teacher evaluation system, include innovation ability into evaluation indicators, and pay attention to diversified forms of academic achievements.

5. Increase resource investment in teacher innovation projects to ensure sufficient financial and human support.

6. Reduce teachers' pressure for change, provide necessary psychological counseling and support, and enhance their confidence in change.

7. Strengthen communication and collaboration mechanisms to ensure smooth flow of information and efficient teamwork.

8. Pay close attention to changes in the external environment and promptly adjust innovation strategies to adapt to changes.

9. Provide teachers with personalized training and development plans to meet the special needs of different individuals.

Through the comprehensive application of these countermeasures, we can effectively deal with the difficulties and challenges that school administrators encounter in the process of improving the innovation ability of college teachers, and promote the improvement of teachers' innovation ability and the sustainable development of schools.

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