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The Influence of Organizational justice, Ethical Leadership and Work Engagement on Teachers' Innovative Behavior in Colleges and Universities

조선대학교 대학원

경영학과

왕화동

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조직공정성, 윤리적 리더십, 직무열의와 혁신행동과의 관계 단과대학에서

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Acknowledgements

In December 2018, as part of the strategic cooperation agreement signed between Hebei University of Engineering and Chosun University, I went to Korea to study for my doctorate in Chosun University Business College, starting my way to study for a doctorate abroad.

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In 2022, set sail!

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국문초록

조직공정성, 윤리적 리더십, 직무열의와 혁신행동과의 관계

왕 화 동

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본 연구는 중국 허베이성에 소재한 대학의 교원과 행정직원들을 대상으로 조직공정성이 혁신행동에 미치는 영향력을 살펴보고자 하였으며, 윤리적 리더십의 영향력과 직무열의의 역할을 규명하려는 목적으로 수행되었다. 조직공정성과 혁신행동과의 관계에서 직무열의의 매개효과, 직무열의와 혁신행동과의 관계에서 윤리적리더십의 조절역할의 규명을 통해 어떠한 과정과 맥락 하에서 조직공정성의 영향력이 나타나는지를 살펴보았다는 점에서 의의를 가지고 있다. 조직공정성은 분배공정성, 절차공정성, 상호작용 공정성인 대인관계 공정성, 정보적 공정성으로 구분하였다. 직무열의는 활력, 헌신, 몰두로 구분되는데 이를 총합으로 묶어서 분석에 활용하였다.

연구가설은 조직공정성, 윤리적 리더십이 혁신행동에 미치는 영향에 대한 직접효과 가설, 직무열의의 매개효과 가설 그리고 직무열의와 혁신행동과의 관계에대한 윤리적 리더십의 조절효과에 대한 가설을 설정하였으며 연구가설의 검증은 설문을 통해 검증을 실시하였다. 기 검증된 설문문항을 토대로 중국어로 번역하였으며,다시 영어로 번역하여 원문과의 차이를 제거하였다. 설문은 총 470 부를 배포하였으며 이중 416 부의 설문을 수거하였으며 수거된 설문을 최종분석에 활용하였다.

본 연구의 연구결과를 요약하면 다음과 같다. 첫째, 조직공정성이 혁신행동에 미치는 영향력에 있어서 분배공정성, 절차공정성, 대인관계 공정성, 정보적 공정성 모두 혁신행동에 정(+)의 영향력이 나타나고 있었다. 둘째, 윤리적 리더십은 혁신행동에 정(+)의 영향력이 나타나고 있었다. 셋째, 직무열의는 조직공정성인 분배공정성, 절차공정성, 대인관계 공정성, 정보적 공정성과 혁신행동과의 관계를 매개하고 있었다. 넷째, 윤리적 리더십의 조절효과와 관련하여 직무열의와 혁신행동과의관계를 조절하지 못하는 것으로 나타났다. 다만 교원과 관리적으로 구분해서 분석한 결과 관리적에서는 직무열의와 혁신행동과의 관계를 윤리적 리더십이 조절하는것으로 나타났다. 즉, 윤리적 리더십이 높은 경우 직무열의가 혁신행동에 미치는 정(+)의 영향력은 더욱 확대되고 있었다.

본 연구의 연구결과를 통해 중국대학에서 교원과 행정직원들의 혁신행동을높이기 위해서는 조직공정성 확보가 중요하다는 것을 알 수 있었으며 윤리적 리더십발휘가 필요하다는 것도 확인할 수 있었다. 이론적 측면에서 직무열의가 조직공정성과 혁신행동과의 관계를 매개한다는 측면에서 직무요-자원모델의 적용이 가능하다는 시사점을 가지고 있다. 윤리적 리더십의 경우 직접효과가 나타나고 있는 반면조절효과는 나타나지 않았다. 그러나 행정직원들에게서는 조절효과가 나타나고 있었다. 이를 통해 행정직원들에게 윤리적 리더십의 역할이 무척 크다는 점을 규명하였다는 것에서 시사점을 가지고 있다.

주제어: 조직공정성(분배, 절차, 대인관계, 정보적), 윤리적 리더십, 직무열의, 혁신행동

Ⅰ. Introduction

1.1 Research Introduction

The concept of innovation is explained in the Chinese Modern Dictionary as: “Setting aside the old, innovative”. It means to update, change, and create new things. It is synonymous with creation, invention, innovation, creativity. Innovation is the soul of a nation progress and development, and an inexhaustible driving force for the country’s prosperity. Innovation-driven is the guarantee and source in the rapid development of country’s productive. In the 21st century,all areas have begun to regard innovation as the first element of development, and talents as the main body are the first resource for innovation.

Innovation has become normal in current college and university education. Teachers as the largest group of education practitioners, whose innovative behavior can play a strong part in advancing innovation in the entire education field. The key to educational innovation lies in teacher innovation, and the key to teacher innovation depends not only on whether teachers have strong creativity and advanced educational concepts, but also on whether teachers can spontaneously integrate their creativity, advanced educational and teaching concepts. And active and innovative behavior can be showed in actual work.（Jansseen, 2000; Messmann & Mulder, 2014; Scott & Bruce，1994; Zhou&Hoever，2014; Zhang M.，Zhang L.,2012). Therefore, teachers ‘innovative behavior is the core of educational innovation, is an indicator of cultivating innovative talents, advancing the scientific development of school education, improving teachers' professional development level and work performance, and maintaining a healthy mental state.（Anderson, De Dreu &Nijstad，2004; Andiliou &Murphy,2010; Messann& Mulder,2014; Zhou & Hoever,2014). Exploring the factors that influence the innovative behavior of college and university teachers and analyzing their internal mechanism has become an important subject of current college and university teacher research.

Although few studies have directly focused on teachers’ innovative behavior (Thurlings，Evers&Vermeulen, 2015) in recent years, the exploration on the innovative behavior of workers

shows a pattern of fast change. Researchers have investigated their influence from the sociodemographic factors, individual characteristics factors and organizational environment factors, which has drawn many useful research conclusions.

The factors that affect teachers' innovative behavior include sociodemographic factors,individual characteristics factors and organizational environment factors. Individual characteristics factors concentrated on variables such as psychological capital, psychological empowerment, cognitive style, willingness to share knowledge, self-efficacy, work engagement, etc.(Kim, Hon,＆Lee,2010; Madrid, Patterson, Birdi，Leiva，＆Kausel，2014; Seibert，Kraimer, ＆Grant，2001; Han Y., Yang B.Y.，2011; Liang , Zhang Z.Z., Li ，2016; Rego，Sousa，Marques， & Cunha，2012). The organizational environment factors mainly involve in variables such as leadership style, power distance, innovation atmosphere, Organizational justice, etc.(Buschgens,Bausch＆Balkin,2013; Hsu＆Fan,2010; Tierney,Farmer＆ Graen,1999; Zhang ＆Bartol,2010; Ding L., XI Y.M., Zhang H.,2010; Guo W., LI Y.P., Du J., Tao H.Y.,2012; liu Y.A.，2018；Su Y., Cui M.M., Sun Y.，2017). Among them, leadership style is viewed as one of the main elements of influencing representative leadership. The ethical leadership is an important type of leadership style.

Therefore, this thesis chooses Organizational justice as the dependent variable, teacher work engagement as the mediator variable, and teacher innovative behavior as the independent variable and ethical leadership as the moderator variable. In light of the current exploration on creative conduct, combined with the specificity of college and university teachers' occupations, the questionnaire is adopted. The method of investigation is to understand and investigate the status quo of college and university teachers' work engagement and innovative behaviors, explore the changes and impacts of Organizational justice and ethical leadership on innovative behaviors in college and university, and consider the mediating effect of teachers work engagement. The thesis puts forward strategies and suggestions to effectively improve the innovative behavior of colleges and universities teachers.

1.2 Research Background

1.The importance of teacher's innovative behavior in colleges and universities has become increasingly prominent

At this stage, our country is implementing the path of strengthening the country with human resources. The situation of mass entrepreneurship and innovation has taken shape, and innovation is the fundamental way out. In today's increasingly fierce market competition, to accomplish the sustainable competitive advantage, organizations need to enhance innovation more than ever before (Scott & Bruce, 1994). For colleges and universities, this should be the case.

For colleges and universities, as the market environment continues to improve, the competition for talents among colleges and universities has become increasingly fierce.To acquire a firm traction on the lookout and achieve sustainable development, colleges and universities also need continuous innovation to stand out in the fierce market environment. As a high IQ group, college and university teachers have high professional freedom and strong innovation. They pay more attention to the realization of self-worth and the manifestation of social status. They are the main body of colleges and universities. Strength is the key force for the development of colleges and universities, and the improvement of its innovative behavior is an important driving force for the sustained and stable development of colleges and universities. The key to teacher innovation depends not only on whether the teacher has strong creativity and advanced education concepts, but also on whether teachers can spontaneously transform and apply their creativity and advanced education and teaching concepts to practical work. Showing positive and innovative behavior. (Jansseen, 2000; Messmann, & Mulder, 2014; Scott, & Bruce，1994; Zhou＆Hoever,2014; Zhang M. & Zhang L.2012).

What factors influence college teachers' innovative behaviors in school teaching, scientific research, discipline construction and social services? How to determine the pre-variables and intermediate variables are the issues that this thesis should focus on.

2. The importance of ethical leadership to teachers' innovative behavior

Under the background of today's knowledge economy era, knowledge-based employees

have increasingly become an important force in promoting the development of enterprises. They have distinct personality characteristics, dare to challenge authority, and have a solid feeling of innovation, and yet they will likewise show a few immature behaviors. Non-ethical behaviors such as organizational deviant behaviors and anti-productive behaviors have brought challenges to the internal management of the organization to a certain extent, and are also not conducive to stimulating the innovative behavior of organizational members and creating a good atmosphere for innovation. (Mayer, Aquino, Greenbaum, & Kuenzi, 2012). As a positive leadership, ethical leadership influences the organization's employees through the leader's own ethical qualities, improves the ethical norms of employee behavior, and helps reduce employees' negative behaviors. (Carmeli, Reiter-Palmon, & Ziv, 2010).

Ethical leadership originates from internal personality virtue, professional charm, emotional cohesion and other non-power influence. Teacher's ethical leadership includes teacher's belief, cultivation, active responsibility consciousness and so on, which will have a great impact on others：Integrate with others' ethical system, win others' trust and input, and exert a subtle influence on others. As the influence increases, the behavior of employees will change a lot. Through continuous learning, they can improve their behavior and carry out some innovative activities.

Colleges and universities should adopt more humanized management mode, pay more attention to teachers' emotion and career development, trust and respect teachers, encourage teachers with values and community goals, make teachers voluntarily contribute themselves to achieve school goals, promote teachers' self-management, and become "leaders of leaders".

3.The importance of Organizational justice to teachers' innovative behavior

Justice theory is an individual or group's perception of whether an organization is treating them fairly, and the corresponding behavioral responses they take as a result of this perception. (Adams,1965;French,1964; Greenberg,1987; Scholl,1987; James,1993; Moorman, 1991; Colquitt, J Greenberg, Zapataphelan, 2005）.

Colleges and universities are organizations in the field of education. Due to their high level of knowledge and culture, teachers in their organizations have a stronger perception of Organizational justice than members of other types of organizations. They pursue a higher level of justice. But unfair phenomenon occurs frequently in colleges and universities, teachers for their effort and get paid ratio would compare measure, part of the teachers in a unfair treatment, will choose to respond in the form of a dominant or recessive, such as departure, slacking, affect their later behavior and performance, not to mention innovative behavior, these are all don't want to see the leadership of the colleges and universities.

Therefore, whether the organization is fair is related to the stability of the group of college and university teachers, and it also has a key impact on their work enthusiasm, satisfaction and innovative behavior.

4.The influence of teachers' work engagement on the innovative behaviors of college and university teachers

Innovation is a dynamic and complex process. Innovative behaviors include the generation and implementation of ideas. Innovation not only requires teachers to have certain knowledge, ability and motivation, yet additionally expects instructors to contribute a ton of time and energy in their work. The implementation of innovative behavior is a process of continuous exploration and trial and error. Teachers will encounter many unexpected problems and difficulties, which require teachers to persevere and face them. Work engagement can stimulate teachers' enthusiasm and initiative. And teachers' enthusiasm and initiative contribute to teachers' innovative behavior. Existing empirical research also shows that the initiative of company employees' work engagement can stimulate. The initiative of employees can promote the innovation of work units. Is this the same for college and university teachers?

Therefore, the variable of teacher work engagement is introduced into the relationship model of Organizational justice, ethical leadership and teacher innovative behavior, and the mediation effect of teacher work engagement and the influence of teacher innovative behavior are investigated.

In summary, the flow research on the inward impact system of educators' work engagement is still weak, and direct research on teachers' innovative behavior is still in the development stage. A complete survey of the past research results on Organizational justice, ethical leadership, work engagement and innovative behaviors. There are fewer hypotheses about the relationship between the four variables and there are fewer empirical studies. Especially the empirical research on the mediating variables of teacher work engagement is very limited. And the research basically stays at the enterprise level. The school level is also sporadic research carried out in primary and secondary schools. And there is less research at the college and university level.

1.3 Research Question

In view of the above content, this thesis advances the inquiries to be examined:

(1) Does the organizations justice of colleges and universities and various dimensions have an impact on teachers' innovative behavior, and what kind of impact?

(2) Do college and university teachers' ethical leadership has any influence on teachers' innovative behavior, and what kind of influence does it have?

(3) Does the ethical leadership in colleges and universities have an impact on teachers' innovative behavior, and what kind of impact?

(4) Do the various dimensions of colleges and universities teachers' work engagement have an impact on teachers' innovative behavior, and what kind of impact?

(5) Does the work engagement of teachers play mediating effect in the organizations justice of colleges and universities on teachers' ethical leadership and teacher innovative behavior, is it a partial intermediary or a complete intermediary?

(6) Does ethical leadership play a moderating role in college and university teachers' work engagement and innovative behavior?

1.4 Research Objection

Organizational justice and ethical leadership are increasingly valued in the process of organizational development. This thesis through the use of scales to explore the explore the relationship of the four variables .It also expounds how to improve teachers' work engagement from the perspective of Organizational justice and ethical leadership , so as to enhance teachers' innovative behavior.

1.5 Significance of Study

1. Theoretical significance

(1) This thesis examines teacher work engagement as an mediating variable, which is obviously innovative and helps to expand the theoretical results in the field of Organizational justice, ethical leadership , work engagement and innovative behavior, and enrich its theoretical system. It provides a feasible intervention path for college and university leaders to adopt appropriate behaviors to encourage teachers' innovative behaviors, which is conducive to improving teachers' innovative performance, optimizing manager's leadership behavior and providing important theoretical references and academic reference for college and university managers to establish an effective teacher management model.

(2) College and university teachers have their own distinct attributes that give them distinct personal characteristics, and their behaviors in the college and university to which they belong are different. The fierce and cruel market competition makes colleges and universities focus harder on the innovative behavior of teachers. In the process of inspiring teachers' innovative behavior, how to make adjustments from the individual level of teachers? When formulating relevant policies, how to fully consider teachers' participation to conducive to stimulating teachers' innovative behavior? These will provide empirical references for enhancing the competitiveness and influence of universities.

(3) Introduce the factor of the type of teachers, and classify and compare the differences between teaching staff and administrative staff in their work engagement and innovative behaviors, which conforms to China's national conditions.

This thesis takes the type of colleges and universities teachers as a variable to study the difference influence among teaching staff and administrative staff in Organizational justice, ethical leadership,teacher work engagement and innovative behavior.

2. Practical significance

A far reaching survey of the previous research results on Organizational justice, ethical leadership, work engagement and innovative behaviors. There are fewer hypotheses about the relationship between the four variables, and there are fewer empirical studies. This thesis broadens the research field of influencing factors of innovative behaviors to a certain extent. Provide a certain degree of empirical support for follow-up research, and provide feasible intervention paths for organizational leaders to take appropriate behaviors to encourage employees to innovate, which is conducive to improving the innovative behavior of college and university teachers and optimizing the leadership behavior of managers. Thereby promoting the long-term development of colleges and universities. Development provides certain practical enlightenment.

1.6 Research innovation

1. Based on the actual working condition investigation of colleges and universities teachers, this thesis compiled evaluation scale of college and university teachers' ethical leadership, Organizational justice, work engagement, teacher's innovative behavior, and constructed the theoretical research model, which provides important tool support for further exploring the influencing factors and their relationship mechanism of the four factors.

2. This thesis takes teachers' work engagement as a mediator variable and ethical leadership as a moderator variable in the construction of the model. This thesis discusses the mediating effect of teachers' work engagement in colleges and universities on Organizational justice and teachers' innovative behavior.

3. Based on the research content of Western scholars on ethical leadership and Organizational justice, this thesis combines the unique cultural background of China and applies

it in Chinese universities. It classifies and compares the faculty work of “Double Tops” college and university and common college and university. The difference between investment and innovative behavior is in line with China's national conditions and has great implications for localized management.

Ⅱ. Literature Review

2.1 Research Status of Organizational justice

1. Definition of Organizational justice

Adams (1963) proposed the classic equity theory, trying to reveal how people feel unfair. French (1964) formally proposed the concept of "Organizational justice" applicable to the workplace. Greenberg (1987) conducted a systematic research on Organizational justice. After that, the system research on Organizational justice became more and more perfect.

Different researchers have given different definitions of Organizational justice. Scholl, Cooper & Mckenna (1987) defined Organizational justice as "the individual in the organization's subjective perception of the organization's resource allocation and the justice of the reward and punishment system". James (1993) believed that Organizational justice was the individuals or groups feeling whether the organization treats themselves fairly, and the corresponding behavioral responses they take due to this perception. Moorman, Zaltman.& Deshpande (1991) proposed that Organizational justice as a variable that reflects whether individuals in the workplace are treated fairly can affect other work-related feelings. Colquitt, Greenberg & Zapataphelan (2005) believe that the theory of Organizational justice is to examine individuals' perceptions of justice in their employment relationships. Jeon (2009) believes that Organizational justice is the justice that people feel in the workplace.

2. The structure and measurement of Organizational justice

Because everyone has different evaluation criteria for justice, so according to their own research needs, the division of the dimensions of Organizational justice is also different. Therefore, Organizational justice has also experienced a development from a single dimension to a mufti-dimensional.

The researchers discussed dimensions of justice. Some researchers have concentrated on one dimension, two dimensions , three dimensions, and four dimensions .

Based on the expansion and change of the Organizational justice structure, researchers relatively recognize the four-dimensional Organizational justice structure and the Organizational justice scale compiled by Colquitt (2001) that matches it. There are 20 items in total, the Procedural Justice dimension has 7 items. the Distributive justice dimension has 4 items.the Interpersonal_Justice dimension has 4 items. And the information justice dimension has 5 items.

（1）Distributive Justice

Distributive_Justice is the fair feeling of individuals in the organization about the results of the resource allocation. Adams' classic equity theory believes that the reference object of justice is horizontal comparison of others and vertical comparison of self. Individuals will invest their own work (time, ability, loyalty). The ratio of income from work (respect, salary, safety, etc.) is compared with the reference object, which creates a sense of equity/ inequity. The justice of distribution is worried about the equity of the aftereffects of the association's appropriation, overlooking the dissemination interaction.

（2） Procedural Justice

Procedural Justice alludes to people's perception of the results obtained by the procedure. According to the "fair process effect" (Cropanzano & Folger, 1989), under the condition of fair process (such as consistent, representative, and unbiased procedures), individuals will feel fair even if the result is unfavorable.

Procedural Justice is an individual's perception of the justice of the procedures referred to and implemented by the organization in allocating resources, that is, whether the individual perception is fair to the organization in decision-making system, process and method. Procedural Justice is determined by the perceivable distribution process, not the result of allocation (Leventhal, 1980). When individuals in the organization face the organization's distribution results——especially undesirable distribution results——they will be different feelings. If the individual believes that the distribution process is fair (Higher procedural fairness), the individual can accept and tolerate the unsatisfactory distribution results well. But

they believe that the distribution process is unfair (lower procedural fairness), individuals will have complaints and anger.

When people think that they are given dignity and respect, and can obtain relevant information or adequate explanations in the allocation of important resources, their perception of justice will be higher (Bies & Moag,1986). Colquitt (2001) further divides interactive justice into the following sections.

（3）Informational justice

Information justice alludes to the reasonable sensations of people in the organization regarding the information provided by the organization leader. It is mainly whether the organization leader conveys information and explains questions to the individuals in the organization timely and effectively. It can also be regarded as the individual in the organization to the organization affair perception of the degree of shared information. If the information acquired is delayed, insufficient or not reasonably explained, then, at that point, the singular will imagine that they have not been dealt with genuinely in the organization (Colquitt, 2001).

（4）Interpersonal Justice

Interpersonal Justice is the fair feelings of individuals in the organization about their interaction with the leaders of the organization. Do leaders consider the dignity of individuals in the organization, treat them kindly, treat them with due respect, evaluate them appropriately? This is not only reflected in the interpersonal communication in the association's independent direction and execution process, but also in the interpersonal communication in daily work (Bies & Moag, 1986).

To sum up, Organizational justice is a significant piece of relational connections in the working environment. Employees pay close attention to the process, results, and justice of interpersonal treatment in the organization. When employees see that the organization is fair, they believe that the organization can meet their four important needs: Belongingness needs, sense of meaning needs, positive self-esteem needs and control needs. (Cropanzano, Byrne, Bobocel & Rupp, 2001).

Researchers tend to three dimensions and four dimensions of Organizational justice structure division in China,and propose different dimensional divisions based on actual conditions. Hong (1998) partitions Organizational justice into three aspects: dispersion equity, Procedural Justice, and system justice.

Zhang (2005) believes that the three dimensions:justice of results, justice of procedures and justice of interaction . Li&Liu (2003) compiled Organizational justice scale including four dimensions: justice in distribution, justice in procedures, justice in leadership and justice in information .

<Table: 1> Summary of the development of Organizational justice structure and measurement

dimension	contents	Representative
Single dimension	Distributive_Justice	Adams(1965)
Two dimensions	Procedural_Justice and Distributive_Justice	Niehoff & Moorman(1993）
Three dimensions	Procedural_Justice, Distributive_Justice and Interactional justice	Moag(1986), Moorman, Niehoff & Moorman(1993)
	Distributive_Justice, Procedural_Justice and Institutional Justice	Hong (1998)
	Outcome justice, Procedural_Justice and Internationale Justice	Zhang(2005)
Four dimensions	Procedural_Justice Distributive_Justice Interpersonal_Justice Informational Justice	Judge & Colquitt (2004) Humphrey, Ellis, Conlon, & Tinsley (2004)
	Procedural_Justice, Distributive_Justice, Leadership justice and leadership interpretation	Liu Y.（2002）

2.2 Status of Research of Ethical leadership

1. Definition of ethical leadership

Burns (1978) first analyzed the relationship between ethicality and leadership when he studied the difference between transformational leadership and transactional leadership. But he only believed that the characteristics of leadership include ethical behavior. He has not studied ethical leadership as an independent leadership style. He believes that ethical leaders can integrate with the ethical system of their subordinates, win their trust and investment , and thus play a role in motivating employees.

Enderle (1987) truly studied ethical leadership as an independent type of leadership, and he first proposed the concept of ethical leadership. In the research, ethical leadership is regarded as a decision-making method of leaders in the management process and the management practice. ethical leadership is divided into two levels: organization and individual.

Brown, Trevio & Harrison (2005) believe that ethical leadership means that the leader demonstrates ethical personal behavior in the process of interacting with subordinates, and promotes employees to develop various ethical behaviors in the enterprise through various management processes.

Firstly, ethical leadership requires leaders to be “ethical people”. That is, leaders themselves should show honesty and trustworthiness, justice and integrity, care for his subordinates, with moral standards of personal quality. Secondly, ethical leadership is an “ethical Managers”. It means that leaders can make fair and just decisions within the organization based on their own ethical judgments They must establish an ethical cultural atmosphere in the organization. Thereby,it can Influence, regulate and restrain the behavior of employees, and promote the moral standard of employees' behavior.

Ethical leadership stems from non-power influences such as inherent personality, professional charm, and emotional cohesion. Therefore, the ethical charisma formed by teachers’ beliefs, self-cultivation, and sense of initiative and responsibility is the teacher’s most

natural leadership. No matter what kind of group activities the teacher is in, ethical leadership will have a great impact on others. It can Enlighten students' minds and develop their innovative spirit. It is a permanent and profound educational force that cannot be replaced by other educational methods.

2. The measurement of ethical leadership

Hartman & Brown (2000) proposed that ethical leadership should be a combination of ethical people and ethical leaders, both of which are indispensable to ethical leadership. They summarized the four basic elements of ethical leadership : people-oriented, ethical character and behavior, ability to formulate ethical standards and principles, a broad sense of ethicality.

From the perspective of social learning theory, Brown, Trevio & Harrison (2005) compiled a single-dimensional ethical leadership scale that includes 10 items, and this scale has also been widely recognized by researchers.

Khuntia and Suar (2004) conducted a two-factor structural study on ethical leadership and compiled an ethical leadership assessment scale (22 items in total, including two dimensions: empowerment, motivation and personality quality).

Hoogh & Hartog (2008) developed a three-dimensional ethical leadership scale for senior leaders. It includes justice and ethics, clear roles, and rights sharing.

Since then, Resick and others have conducted a four-factor structure study .They believe that ethical leaders include four dimensions under different cultural backgrounds: integrity, altruism, collective motivation and encouragement. Later, scholars have conducted multi-dimensional research .

However, in domestic researches, moral leadership is seldom developed into a scale alone, and most of them regard it as one dimension of leadership theory. Zheng (2000) developed a Paternalistic Leadership Scale based on their theoretical assumptions and tested 20 Taiwanese companies. They analyzed the data obtained and finally formed a Paternalistic Leadership Scale. The scale consists of three subscales: benevolent leadership, ethical leadership and authoritative leadership. Among them, the benevolent leadership accounts for 11 questions, the ethical

leadership accounts for 9 questions, and the authoritative leadership accounts for 13 questions.

Ling (2003) derived a three-factor model of CPM leadership in view of the factor analysis of the overview aftereffects of 8792 subjects. He developed a three-dimensional ethical leadership evaluation questionnaire.The questionnaire included three dimensions: personal ethicality , work performance and group maintenance. The explanation rate of variance of personal ethicality was 80.03%; the explanation rate of variance of work performance was 8.19%; the explanation rate of variance of group maintenance was 3.60%. Liang (2006) has developed a five-dimensional ethical leadership scale based on its theoretical research. The scale of ethical leadership is composed of human care, leadership, work commitment, gentleman demeanor and integrity. On the basis of existing theories, Meng, Song & Chen (2014) developed the Chinese ethical leadership Questionnaire (CELQ) based on the connotation of Chinese ethical leadership. They believe that Chinese ethical leadership is a three-factor structure. The three factors are ethical quality , respect and tolerance, ethical rewards and punishments. The overall questionnaire was good reliability and validity.

<Table: 2> Ethical leadership measures dimensions

Dimension	Contents	Representative
Single dimension	Ethical leadership	Brown , Trevio& Harrison（2005）
two dimensions	Empowerment, motivation, and personality traits	Khuntia & Suar（2004）
three dimensions	justice and ethicality, clear roles, power sharing	Hoogh& Hartog（2008）
	Personal character, work performance and organization	Ling（2003）
	ethical character, respect and tolerance, ethical rewards and punishments	Meng, Song , A & Chen（2014）
four dimensions	People orientation, ethical character and conduct, ability to set ethical standards and principles, and a broad sense of ethics.	Treviño, Hartman& Brown（2000）

	Integrity, altruism, collective motivation and encouragement	Resick, Hanges, Dickson & Mitchelson (2006)
five dimensions	Human concern, leadership, commitment to work, gentleness and integrity	Liang（2006）

2.3 Research status of teachers' work engagement

1. Definition of work engagement

Lodahl& Kejnar(1965) first proposed the concept of work engagement.

Kanungo (1982) argued that, work engagement refers to "no matter what kind of work engagement is derived from an individual's significant needs and the opportunities that an individual perceives to be satisfied by the job". work engagement refers to an individual's psychological state of cognition or trust in his current job.

Kahn(1990) thought work engagement was the process of integration and transformation between employees and their work roles.

Maslach & Jackson (1997) argue that: work engagement and work burnout are related to the work of the health state of the ends of the continuum and the inner dimension is consistent.Work burnout was the staff in the process of work engagement gradually erosion and consumption as a result, the report by energy into failure and attitude towards work by involved in becoming alienated, indifference, professional efficiency decreases gradually. Therefore, they believed that work engagement includes three aspects:energy, involvement and efficacy, which are exactly opposite to the three dimensions of burnout: emotional exhaustion, dehumanization and loss of personal achievement.

Britt, Adler & Bartone (2001) believe that work engagement alludes to a person's solid awareness of certain expectations and obligation to their work execution. The quality of work performance is closely related to himself or herself.

Bakker, Arnold, Demerouti, Evangelia & Schaufeli (2002) believes that Work Engagement is a kind of emotional and cognitive state related to work.This state was universal and persistent and not specific to specific objects. At the same time, they believed that work engagement

should include three dimensions: vigor, dedication and concentration.

Vigor referred to the individual with tough psychological characteristics and high energy level, ready to pay, even with challenges won't feel tired and utilization. Dedication referred to an individual's strong sense of significance and responsibility for his work, his ability to fully immerse himself in his work, and his willingness to accept pressure and challenges in his work. Concentration referred to the fact that an individual is fully engaged in his work, is able to enjoy it, is immersed in his work, and does not want to leave it.

Due to different focus points, there are a few contrasts among Chinese and unfamiliar researchers in characterizing the idea of work engagement. Liu (2007) accepts that work engagement alludes to a singular's dynamic demeanor and level of adoration and captivation for their work. At the point when representatives are exceptionally occupied with their work, they can focus on their work without slurping. Li & Ling (2007) accepted that work engagement was a positive and intellectual state connected with work, with the attributes of industriousness and scattering. The definition emphasized employees' loyalty, positive cognition, identification and emotional state to work at the cognitive level.

Xu & Zhu (2007) believe that work engagement referred to an individual's psychological recognition of his current job and his emphasis on work performance, and his active participation in work. Work engagement was the integration of multiple factors, including cognition, emotion and behavior.

Wang (2008) believed that work engagement referred to a worker's active attitude and love and infatuation for his or her own job. It was a state full of energy and able to effectively enter into the work state and get along with others harmoniously. It was characterized by vitality, dedication and concentration.

Li and Wang (2009) believed that work engagement referred to workers' psychological identification with their work or the significance of work to themselves, that is, the degree of workers' involvement in their current work.

Zhang,Yang and Ma(2010) believed that work engagement refers to enthusiasm, active dedication and active integration in work.

2. Measurement of work engagement

Britt et al. (2001) compiled a corresponding scale based on the operationalization of work engagement. The scale consists of 6 items, covering responsibility, commitment and perceived impact of performance.

Xu (2005) developed a four-dimension scale of work engagement with employees as survey objects, including interest-oriented, work enthusiasm, psychological identity and active participation, with a total of 18 items.

Schaufeli & Bakker (2002) fostered the Utrecht Work Engagement Scale for the three aspects of vitality, dedication and focus, including the complete version (17 items) and the simple version (9 items). This scale was high reliability and validity, and has certain cross-cultural and cross-occupational applicability (Schaufeli , 2002; Li , 2006; Zhang , 2005) .

2.4 Research status of innovative behavior

1. Definition of innovative behavior

Innovation is an interdisciplinary and multi-angle concept. It plays an important function in the study of business, technology, art and sociology. The word OF innovation first appeared in Schumpeter's “Innovation Theory of economic development” (1912). However, Schumpeter's definition of innovation overemphasized the economic meaning of innovation. Deruke (1985) proposed that innovation includes technological innovation and social innovation .

The study of Kleysen, & Street(1930) showed that innovative behavior includes five dimensions:looking for promising circumstances, creating thoughts, assessing thoughts, supporting and applying them. Scott and Bruce (1994) proposed on the basis of Kanter (1988) that innovative behavior was a complex process starting from the formation of an individual's cognition and concept of a problem, seeking assistance through creativity, carrying out or planning innovative ideas into practice, and finally realizing the “productization” or “institutionalization” of innovative ideas or solutions

Research on innovative behavior emerged in the 1980s. The researchers conducted a large

number of studies from the individual-level, team-level and organization-level. The research on organizational and group innovative behavior mainly focuses on how the internal members of organizations and teams integrate and utilize various resources and take effective measures to obtain creative products or work methods through coordination and cooperation (West,2002;Dreu,2011;Rasulzada &Dackert,2009). The research on innovative behavior focused more on individuals actively thinking about innovative ideas and taking a series of activities to test their applicability in order to obtain innovative work results (Amabile,1996; Anderson,2004; Scott&Bruce,1994; Janssen,2000). Research showed that the premise and basis of the occurrence of organizational or group innovative behavior was the innovative behavior within the organization (Anderson et al.,2014; Chen, 2013; Zhou & Hoever, 2014; Zhou & George, 2001).Therefore, innovative behavior was the focal point of flow research in the field of creative conduct. This thesis analyzes the innovative behavior of college and university educators from the singular level.

Tsai et al. (1989) believed that innovative behavior was the performance of the interaction between individuals and the environment when new ideas and concepts are generated. Innovative behavior can be partitioned into three levels: organizational, team and individual. At any level, individuals were extremely important components. Since the 1980s, researchers had paid more attention to and studied innovative behavior at the individual level.

West and Farr (1990) emphasized that innovative behavior of employees was purposeful, and believed that innovative behavior includes searching for new ideas and technologies, new methods to achieve goals, application of new methods in work, seeking resources for support and implementation of new ideas.

Amabile was the pioneer of the research on innovative behavior (Zhou & Shalley, 2003). Based on “Social Psychological Research on innovative behavior” (Amabile, 1983), the behavior of innovation was defined for the first time as “the process in which individuals successfully transform creative ideas into behaviors” (Amabile, 1996). Since then, many researchers have carried out a large number of studies on innovative behavior and put forward many different views.

Scott and Bruce (1994) accepted that development should begin from the distinguishing proof of issues. It ought to incorporate creating imaginative thoughts or arrangements, tracking down help for novel thoughts lastly changing the inventive thoughts into items.

Kanter(2000) pointed out that innovation should go through three stages: individual recognition of problems, then individuals with innovation seek alliance to gain support, and finally put ideas or plans into practice and launch commercialized products or services

Zhou and George (2001) feel that innovative behavior alludes to the advancement level of colleagues' practices during the time spent producing, advancing and fostering the execution plan of the substance of the creative thought.

Yuan & Woodman (2010) proposed that the generation of individual new ideas is not limited to one's own ideas, but can also be realized by adopting others' ideas in different situations and implementing the final new ideas.

Chinese scholars Huang (2004) believe that innovative behavior includes the generation and implementation of innovative ideas. GU & Peng (2010) supported Huang (2004) structural division of innovative behavior. Lu and Zhang (2007) proposed that innovative behavior refers to a series of behaviors in which individuals propose novel and applicable ideas for the organization, and participate in and support the implementation, application and promotion of the new ideas. Liu and Shi (2010) believe that innovative behavior is "a process in which individuals generate, introduce and apply beneficial and novel ideas or things in relevant work activities".Liu (2009) showed that innovative behavior is an out-of-job conduct uninhibitedly chose by representatives, which alludes to the interaction wherein workers produce, present and apply advantageous groundbreaking thoughts or things in authoritative exercises.

Zhang (2011) accepts that the innovative behavior of logical and innovative abilities alludes to the imaginative work and execution of logical and mechanical gifts in logical exploration, logical information spread and logical and mechanical administration

From the above explanation of innovative behavior, it can be found that the current definition of innovative behavior is mainly explained from the perspective of process. Based on this, we can understand the innovative work behavior as the collection of a series of behaviors

(creativity) in which individuals produce original , novel innovative ideas or problem solutions (creation) and try to put these new ideas into practice in the work situation and strive to achieve positive effects (innovation). That is, innovative behavior=create+innovation. Specifically, innovative behavior mainly includes a series of activities.

2. Dimensions of innovative behavior

Researchers divide the dimensions of individual innovation behavior mostly based on the process of innovation work behavior. Most researchers assumed that innovative behavior was also a multi-dimensional principle and action process, and developed a corresponding measuring tools. However, many results showed that there was not always a consistent relationship between the structural dimensions of innovative work behavior and its process. So far, scholars have not agreed on the structural dimensions of innovative behavior, including single dimension, two dimensions and multi-dimension.

<Table: 3> The measurement of innovative behavior

Dimension	Representative	Contents
Single dimension	Tierney et al. (1999)	The innovative behavior scale of 9 items was developed. Likert scale 7 was used to score the scale, which was tested to be a single dimension
	Zhou & George (2001)	One - dimensional scale, containing 13 items
Two dimensions	Li (2006)	Innovative idea generation and implementation of two dimensions, including 16 test items
	Lu and Zhang (2007)	Taking 391 employees of enterprises as the test objects, this thesis makes further exploration and analysis, and proposes a two-dimension structure scale, which adopts Likert 5-level scoring, with 7 items in each dimension
Three dimensions	Scott and Bruce (1994)	Generating ideas, seeking innovation support and innovation execution. A total of 6 measurement items were scored using likert 5 scale

	Janssen (2000)	Innovative ideas are generated, promoted and implemented. Each dimension has 3 questions, a total of 9 tests
	Binnewies and Gromer (2012)	The teacher innovative behavior scale was compiled from three aspects: the creation of innovative constructs (5 items), the promotion of constructs (3 items) and the realization of constructs (5 items)
Four dimensions	Jong and Hartog (2010)	Creative construct generation, idea exploration, support seeking and idea realization
	Messmann & Mulder （2011）	On the basis of the five-stage theory of innovative behavior, a four-dimension Teacher innovative behavior scale is developed, which adopts Likert level 6 score and consists of 20 test items

2.5 Organizational justice and innovative behavior

Organizational justice was a singular's impression of equity in the organizational environment (Greenberg,1987). The discussion on the components of Organizational justice has gone through three stages (Young, 2012; Zhang ,Dai and Li ,2012). Early researchers focused harder on people's impression of equity in the proportion of work reward (or result) to labor input. The larger the ratio, the more equitable the Distributive_Justice. Later researchers proposed that in addition to Distributive_Justice, Procedural Justice also existed. That is, the individual's just perception of the procedure and process used in the process of resource allocation .

Further, the authors argue that in addition to Distributive_Justice and Procedural Justice, there are also “interactional justice”.That is, there were also individuals just perception of interpersonal treatment and information communication in the execution of decision-making procedures.

The classical theory of equity illustrated how individuals feel unfair in the organization, and thus to adjust and promote individual work in investment's enthusiasm Research has called attention to that there were critical relationship among's Organizational justice and individual execution. If individuals in an organization feel fair in their work input and income, they will be

roused to buckle down. It decidedly affects the consummation of work, Individuals will step up to the plate and help the association become more perfect, which is undoubtedly one of the prerequisites for the emergence of individual innovation behavior

Researchers believed that a high sense of Organizational justice could effectively relieve individual work pressure (Janssen, 2004), met individual's different psychological needs, and enhanced individual's sense of belonging and control over work (Vanden Bos, 2005).

At the same time, Organizational justice also stimulates individual work emotion and motivation,as well as the strong willingness and behavior to improve the status quo of work (Greenberg&Colquitt, 2005). All of these things promote the creation of innovative behaviors. (Ojedokim, 2012; Ramamoorthy, Flood, Slattery, &Sardessai, 2005; Streicher et al., 2012; Xerri, 2014; Young, 2012).

James (1993) also believed that Organizational justice can promote individuals in organizations to have better work engagement and focus more on their own work, which is conducive to the production of creative products at work.

Cobb (1995) believed that Organizational justice could help organization members better solve the problems encountered by the organization.So Organizational justice could promote individuals to have more positive behaviors.

Janssen (2001) showed that when the work intensity of an organization is medium, individuals' perception of Organizational justice is high, and their innovation performance is correspondingly high.

Guan (2008) confirmed that Organizational justice can affect employees' creativity, but the Distributive_Justice dimension does not affect employees' creativity.

Simmons(2008) concluded that Organizational justice can positively promote innovative behaviors in organizations.

The researchers not only investigated the overall impact of Organizational justice on innovative behavior, but also analyzed its influence mechanism from three dimensions of Organizational justice. For example, Ramamoorthy (2005) mainly analyzed the relationship between Distributive_Justice and innovative behavior.They believed that Distributive_Justice

not only directly affects innovative behavior, but also indirectly affects innovative behavior by satisfying individual expectation and enhancing the sense of innovation obligation.

Streicherd (2012) focused on the influence of Procedural Justice and innovative behavior.They found that Procedural Justice can directly and indirectly promote innovative behavior by enhancing individual's internal work motivation and job identity.

Ojedokun (2012) focused on the relationship between interactive justice and innovative behavior, and proposed that perceived interactive justice enhanced individual's work self-esteem and effectively promoted innovative behavior.

2.6 Ethical leadership and innovative behavior

Leadership is a process of behavior and activity in which a leader comprehensively influences and guides the thoughts, behaviors, attitudes and emotions of others (subordinates) by involving different strategies and means chasing a shared objective (Cummings and Oldham, 1997).Leadership is composed of a series of behaviors, which is an indispensable and important variable to explore individual behavior in organizational environment. At present, with the new development of leadership behavior theory, researchers have carried out a large number of fruitful exploration of different types of leaders on innovative behavior. Among them, ethical leadership has been highly concerned by researchers in recent years and has become a widely used theory of leadership behavior in the study of innovative behavior.

Relatively speaking, the current literature on the connection between ethical leadership and employee innovative behavior isn't in-depth, and not many investigations include the conversation of the instrument of moral authority on worker imaginative conduct.

Tang , Wang, Xiao & Yang (2015) examined the impact system of ethical leadership on new representatives' vocation development according to the points of view of profession versatility and Organizational justice. Wang, Song, Wang & Xu (2015) empirically investigated the effect mechanism of ethical leadership on subordinates' feedback avoidance behavior based on social exchange theory and intrinsic motivation theory. Treviño and Youngblood (1990)

accept that the moral conduct of representatives is firmly connected with the moral climate of associations, and a good ethical atmosphere of organizations can effectively promote positive behaviors such as innovative ideas and innovative execution of employees. Maslach & Jackson (1997) believe that passionate weariness is a condition of weakness brought about by over the top utilization of mental and enthusiastic assets, which will debilitate the excitement of representatives to participate in inventive work. Effective leadership behavior can help reduce employees' emotional exhaustion, and then strengthen employees' involvement in positive behaviors.

Tu & Lu(2013) focused on the positive connection between ethical leadership and innovative behavior.

Ⅲ. Hypothesis and Research model

According to the route of writing background → theoretical analysis → variable setting → dimension screening→research hypothesis→questionnaire design → data processing→research conclusion, this thesis uses literature research method, questionnaire survey method and data analysis method to analyze the causal relationship among Organizational justice, ethical leadership, work engagement and innovative behavior in colleges and universities. The questionnaire survey method, data are collected. SPSS25.0 software and AOMS are used for thesis analysis.

In view of the current research literature, this thesis establishes an research model and puts forward the hypotheses. Specific ideas as follows.

3.1 Conceptual Framework

According to the research purpose, this thesis mainly takes teachers in college and university as the research object to study the influence of Organizational justice、ethical leadership on teachers' work engagement and innovative behavior. The particular examination system is shown Figure 1.

Based on the definition of research variables, this thesis puts forward research hypotheses, introduces the selection of research methods and the determination of research objects, and makes a descriptive statistical analysis of the research results.

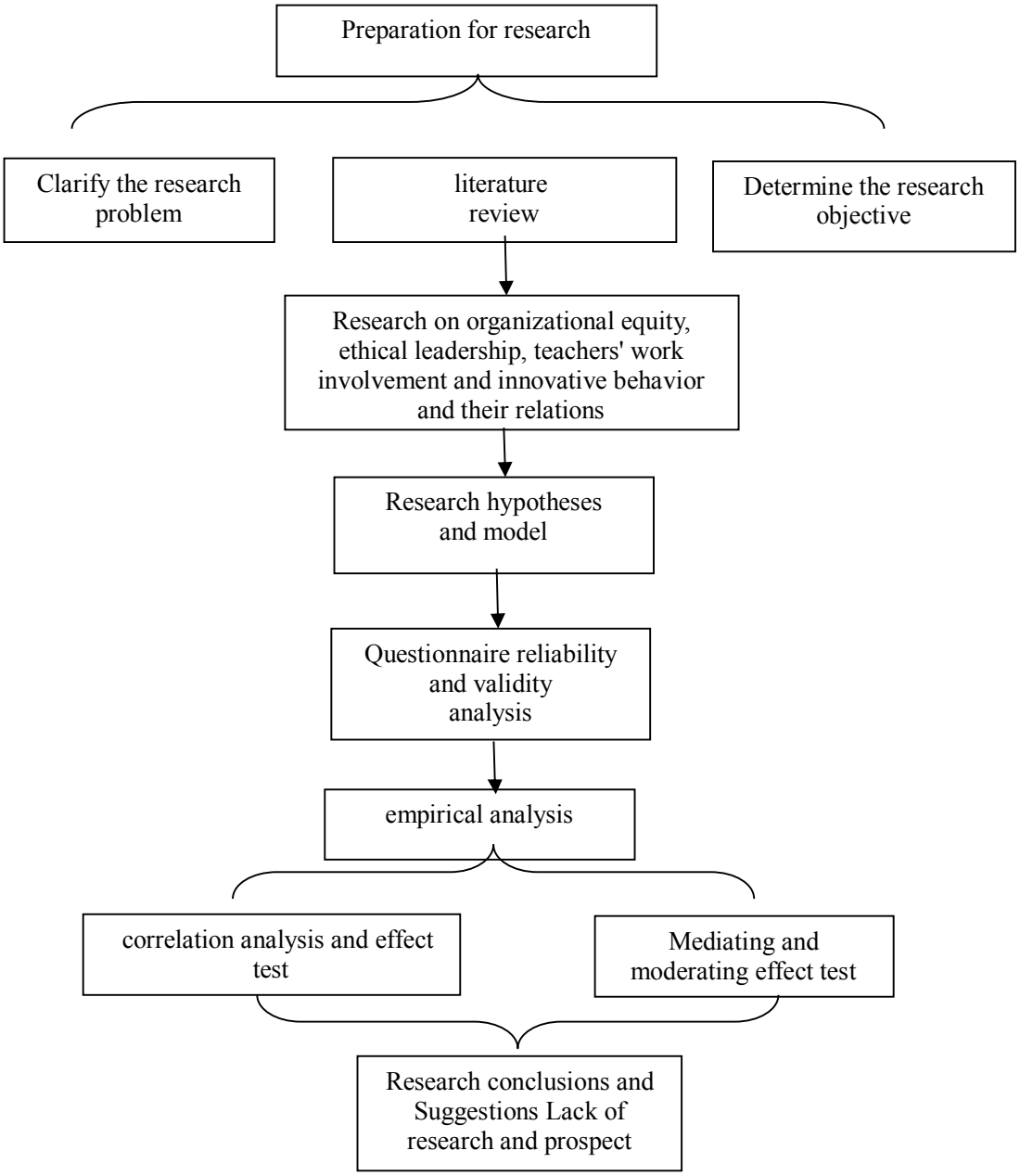
3.2 Definition of Variables

1. Teachers of college and university

This thesis focuses on the fair feelings and behavioral responses of teachers in their own college/university organization. In order to obtain the actual views of teachers and avoid making the research too complicated, Teachers of college and university in this thesis refer to the teaching assistants who serve as teaching and research tasks in university teaching units and the

administrative personnel who work in the management department. The teachers are divided into two parts: teaching staff and administrative staff.

<Figure: 1> Frame diagram of specific research



2.Organizational justice of University Teachers

Referring to the four-dimensional structural model of Organizational justice constructed by

Liu Ya against the background of Chinese culture, and combining with the characteristics of university teachers, this thesis defines the Organizational justice of university teachers as:the perception degree of university teachers on the resource allocation, internal management and decision-making in the University (college) organization is the subjective cognition of the fairness problems. It is measured by the following four dimensions:

(1) Distributive_Justice: The sense of justice generated by teachers ' comparison of their own returns (remuneration, promotion, bonus, etc.) and input (academic degree, efforts in teaching and research, etc.) with others.

(2) Procedural Justice: Emphasis on representativeness, revision, consistency, non-biasedness, accuracy and ethicality in policy formulation and implementation related to distribution of benefits, including whether teachers can participate in the formulation process of University(college) distribution system and whether distribution can be regulated.

(3) Interpersonal Justice: Involves leadership-related factors, regardless of whether superiors treat subordinates obligingly, consider each other's pride and regard each other in the execution of systems or choices.

(4) Informational Justice : Involving the degree of the leader’ s interpretation at the time of distribution, whether to convey the proper information to the parties, that is, to provide some interpretation to the parties, etc.

3. Ethical leadership

In this thesis,ethical leadership mainly refers to the leadership power generated by university leaders with the help of ethical self-construction and ethical-based leadership style and paradigm that affects the majority of teachers and students, guides and encourages the majority of teachers and students to take responsibility and obligations relying on their own abilities, so as to achieve the influence of University(college) development goals.

4. College and university teachers ' ethical leadership

Ethical leadership puts forward high requirements for teachers’ internal ethical cultivation,

which originates from teachers' own personality cultivation and their belief and adherence to educational value, as well as teachers ' active sense of responsibility and responsibility ethics for University(college) education.

This thesis points out that teachers' ethical leadership refers to teachers ' influence on self-motivation and guiding students and other members to follow their ethical charm based on correct educational values and ethical authority. Including: inspiration, incentive force, communication ability, learning ability and executive ability.

Inspiration:teachers attract University(college) administrators,students,parents, colleagues and other leaders' personality charm and special ability. Inspiration is the highest level of leadership and the so-called core leadership.

Incentive force: teachers' incentive ability to motivate students to be positive, to be good at learning, and to be healthy and sunny; teachers encourage colleagues and parents to love education, research education, service education and influence.

Communication ability:teachers and University(college) administrators, colleagues, parents, students and social outside personnel, exchange information, convey feelings, exchange ideas of communication ability.

Learning ability: the ability of teachers to continuously learn in order to continuously improve the level of education, enhance teaching ability, prevent job burnout, and sublimate teaching realm.

Executive ability: Teachers participate in the management of University(college) affairs, participate in the research and decision-making of major events in University(college), and form the executive ability of various decisions in University(college) .

5. College and university teachers ' work engagement

This thesis guides out that the teacher's work engagement refers to the teacher's complete state of lasting, positive emotion and motivation, which consists of three dimensions: work pleasure, dedication and work focus.

(1) Vigor: College and university teachers feel comfortable in their work and experience

the pleasure of education.

(2) Dedication: Teachers experience the value of their work, and willing to contribute to it, and proud of it.

(3) Absorption: College and university teachers work wholeheartedly in the process of work, feeling that time goes by quickly and are unwilling to separate from work.

6. Innovative behavior

Domestic and foreign scholars generally divide innovative behavior into organizational innovative behavior and innovative behavior. This thesis focuses on the innovative behavior of university teachers, which refers to the degree of innovation shown by university teachers in the production, promotion and application of beneficial new ideas or new things in the process of teaching, scientific research and social services. It includes：OE(opportunity exploration), IG(idea generation), IP (idea promotion), IR(idea realization) and RE (reflection).

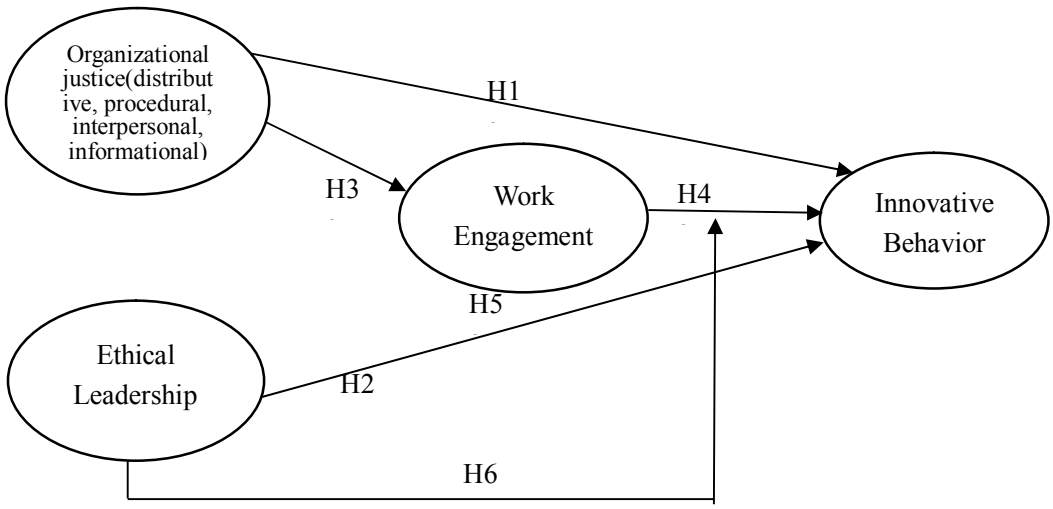
7. University teachers' demographic variables

Demographic variables investigated in this thesis include teachers ' gender、marital status、The name of the colleges/ university、educational level、education、job title、working hours at the university、current position、current income level、The average number of hours you spend working each week、discipline, etc.

3.3 Research model

According to the relevant theories and literature review, as well as the historical review and current research on Organizational justice, ethical leadership, work engagement and innovative behavior, the hypothetical model of this thesis is built, as displayed in the figure 2.

<Figure: 2> Research model of thesis



3.4 Research hypotheses

According to the model of this study, the hypotheses are as per the following::

1. Organizational justice and Teachers ' Innovative Behavior

As a significant motivator measure, the connection among Organizational justice and teacher innovation behavior is the focal point of specialists.

According to the theory of social exchange, if superiors treat subordinates fairly, then, at that point, teachers are bound to have a solid feeling of having a place with the association. Based on the reward psychology, they can make more efforts to contribute to the organization. In this situation, the teachers are more willing and better to complete the work when their individual needs are met . Studies have shown that the individual’s perception of fairness will affect the willingness to work and behavioral tendencies (Yan and Zhang , 2010).

Employee innovative behavior refers to the behavior of employees in the process of promoting innovative ideas from generation to implementation in the organization-related activities, including proposing new concepts, finding new technologies, applying new methods, and improving management and workflow. Active innovative behavior refers to individuals

actively, actively improve or create a working environment. It comes from the heart and voluntarily takes risks, rather than passively adapting to existing conditions.

Organizational justice also stimulates individual work emotion and motivation, as well as strong willingness and behavior to improve work status (Greenberg &Colquitt, 2005), and promotes the generation of innovative behaviors (Ojedokim, 2012; Ramamoorthy, Flood, Slattery, &Sardessai, 2005; Streicher et al., 2012; Xerri, 2014; Young, 2012).

Moon, Kamdar, Mayer & Takeuchi (2008) showed that Distributive_Justice and Procedural Justice were profoundly related with the capable conduct of representatives. Janssen (2004) study shows that a high level of work requirements will promote employees' innovative behaviors at the point when their endeavors are reasonably compensated by the organization. And when both distributive equity and procedural equity are low, employees show high stress responses to innovative behaviors, such as work-related anxiety and burnout.

Li (2010) analyzed the results of 376 questionnaires from three enterprises and found that the interaction of Distributive Justice, Procedural Justice and organizational identity had a significant impact on job satisfaction.

Liu (2012) conducted an investigation in science and technology parks in Shanghai and Zhejiang. The results show that Organizational justice has a significant impact on employee innovation. The impact degree from high to low is Procedural Justice, Distributive_Justice, Interpersonal_Justice and information justice respectively.

An (2015) conducted a questionnaire survey of 269 knowledge workers and found that Procedural Justice and information justice had significant positive predictive effects on innovative behavior of knowledge workers, while Distributive_Justice and Interpersonal_Justice had no significant impact on innovative behavior of knowledge workers.

The research results of Lv (2015) showed that the stronger the fairness of an organization is, the more it can promote employees' innovative behaviors within the organization.

Yang & Yang (2021) based on social exchange theory, role identity theory and resource preservation theory, the effective data of 350 scientific and technological talents are tested. The results show that Distributive_Justice, Procedural Justice and interactive justice all positively

affect the innovative behavior of scientific and technological talents.

For colleges and universities, individual teachers gain economic and social emotional resources from the organization .At the point when they feel obliged to criticism and reimburse the school, they will build their level of work engagement and their own innovative behavior will likewise be upgraded.

When they feel obliged to feedback and repay the school, they will increase their level of work engagement and their own innovative behavior will also be enhanced.

When individual teachers obtain economic and social emotional resources from university organizations, they feel obliged to feedback and repay the university (college) ,such as increasing the level of work engagement, and contributing time and energy to university organizations and work.

Based on the above mentioned, this thesis proposes the accompanying hypothesis:

Hypothesis 1 and 1a-1d: Organizational justice (1a:Distributive Justice ,1b: Procedural Justice,1c:Interpersonal Justice,1d:Informational justice） has a positive impact on teachers' Innovative behavior in college and university.

2. The relationship between ethical leadership and teachers' innovative behavior

According to the definition of Brown(2012), the importance of ethical leadership is more reflected in how leaders influence the behavioral norms of their subordinates through their own behaviors, rather than just the ethical qualities and behaviors of leaders.

Tu & Lu (2013) paid attention to the positive relationship between ethical leadership and innovative work behavior of individual.

Yao , Zhou , Li & Xia (2015) experimentally tried the effect of ethical leadership on representative innovative behavior by poll overview and factual examination. The outcomes

showed that ethical leadership fundamentally advanced representative innovative behavior.

Guan & Wang (2016) took 489 manager-employee paired samples from 13 high-tech enterprises in Jiangsu Province,China as the research objects. They observed that ethical leadership emphatically affected worker innovative behavior.

Fang (2017) conducted a questionnaire survey among 256 employees. The research conclusion confirmed the promotion effect of ethical leadership on employees' innovative behavior from the individual psychological factors and organizational interpersonal communication.

Jing and Bai (2021) confirm the connection between ethical leadership and worker innovation performance through questionnaire survey and data examination of 459 representatives. The outcomes show that ethical leadership has a huge constructive outcome on representative innovation performance.

Ethical leadership by caring, listening, service methods such as make employees respect and satisfaction. Employee will have positive evaluation on work, therefore, thus willing to pay more efforts, especially at work additional creative contribution, because leaders provide teachers with a positive emotional resources, so the teacher willing to dedicate their own ideas. Therefore, ethical leadership will promote teachers' active involvement and work, and then affect teachers' active innovative behavior.

At the same time, ethical leadership is easy to listen to and accept the suggestions of employees in the implementation, and gives organizational employees autonomy and discourse power, which is conducive to stimulating the internal motivation of employees, thus promoting the generation of employees ' innovative behavior. Teachers ' degree innovative behavior is more voluntary and active.

In light of the above mentioned, this thesis proposes the accompanying hypothesis:

Hypothesis 2: Ethical leadership has a positive influence on teachers ' innovative behavior in college and university.

3. Organizational justice and teachers' work engagement

According to Adams' equity theory, teachers will unknowingly think about their own work costs and their compensation with others,, and make a comparison of fairness or not. This comparison directly affects teachers ' behavior. If they think the results are fair, they will return the fair treatment of the organization through hard work. If they think the result is unfair, they will be lazy, negative idle behavior.

Wang (2017) conducted a questionnaire survey on 450 primary and secondary school teachers in Hunan province, Hebei Province and other parts of the country.The results show that Procedural Justice of primary and secondary school teachers mediates the effect between perceived leader-member exchange and work engagement.

He , Zhang, Kuai & Li (2018) taking a college counselor as the investigation object, the results show that there is a huge positive relationship among's Organizational justice and work engagement of school instructors.

Ma (2019) conducted a survey and study on 587 preschool teachers in five regions of Henan Province .They found that Organizational justice of preschool teachers was fundamentally emphatically related with educators' work engagement. Organizational justice of preschool teachers had a significantly positive predictive effect on teachers' work engagement.

Li (2019) conducted a questionnaire survey on Organizational justice and work engagement of 509 kindergarten teachers. They found that Organizational justice of kindergarten teachers was altogether emphatically corresponded with work engagement, particularly leadership justice and information justice had huge prescient impacts on work engagement.

Teachers will also decide whether the decision-making process of feeling organization is fair. The teacher feels fair, then thinks the effort is worth, then continues to maintain the energy and the time investment, if teachers feel unfair, they will consider reducing efforts, thus affecting performance output.

In social relations of the Chinese context, if college/university leaders can give satisfactory

responses to teachers' opinions, treat teachers politely and consider their dignity, teachers will feel respected and work harder. On the contrary, if teachers are dissatisfied with the above-mentioned behaviors of their superiors, they will work negatively. They are likely to be manifested in reducing work engagement, including time and energy.

In light of the above mentioned,this thesis proposes the accompanying hypothesis:

Hypothesis 3 and 3a-3d: Organizational justice (3a:Distributive Justice ,3b: Procedural Justice,3c:Interpersonal Justice,3d:Informational justice) has a positive impact on teachers' work Engagement in college and university.

4. Teachers' Work Engagement and Teachers ' Innovative Behavior

Teachers' work engagement is the psychological state of their active participation, dedication and focus on work, which has emphatically affects instructors' innovative behavior. The previous research has proved that work engagement can actively advance the creative behavior of workers.

Du (2011) conducted a questionnaire survey on more than 400 employees from 100 enterprises, and the research results showed that the content structure of employees' vigor included three dimensions: physical vigor, cognitive vigor and emotional energy. Employees' vigor and all dimensions indeed played a very important role in organizational innovation .

Zhang , Sun & Wang (2014) based on 100 enterprises and 658 employees samples to explore the effect of submitted human asset the board practice on representative innovative behavior and its mechanism.The results show that responsibility HRM practice emphatically affects worker innovative behavior, and worker work engagement plays a total intervening job between the two.

Jiang (2016) research showed that work engagement decidedly affected employee innovative behavior.

Wang (2018) investigated 477 nursing managers from 17 prefecture-level cities in Anhui

province. They found that work engagement was significantly positively correlated with innovative behavior, and professional mission and work engagement had a positive impact on innovative behavior.

Song & Gao (2020) Research shows that: work engagement plays a mediating role in the positive impact of coaching leadership on employee innovative behavior.

Zhu & Liu (2020) found that employee work engagement partially mediates the impact of entrepreneurship on employee innovative behavior, while leader-member exchange positively moderates the impact of employee work engagement on employee innovative behavior.

Tang (2021) showed that work engagement and its three aspects (physical vigor, emotional and cognitive) fundamentally affected employees' innovative behavior in high-tech enterprises.

For college and university teachers, it can make teachers’ pay more attention to work, consciously invest a lot of time and energy in the work, bravely face difficulties and setbacks in the work, and actively find ways to solve problems. Teachers ' performance is ultimately conducive to teachers ' innovative behavior.

In light of the above mentioned, this thesis proposes the accompanying hypothesis:

Hypothesis 4 and 4a-4c: Teachers' work engagement (4a:Vigor, 4b:-Absorption,4c: Dedication）has a positive impact on teachers' Innovative behavior in college and university.

Hypothesis 5: Teachers' work engagement mediate between organizational Justice and teachers' innovative behavior in college and university.

5. The moderating effect of ethical leadership to teachers' work engagement and innovative behavior

As of now, the examination on ethical leadership centers around the impact of moral administration on representatives' working environment conduct. In view of social learning

hypothesis and social exchange hypothesis, numerous researchers clarify the inner component of ethical leadership to control representatives' terrible practices and further develop representatives' work performance.

However, few scholars explore the relevant research of ethical leadership as a moderating variable .

Zhou & Shi (2013) conducted a sample study was of 334 employees from 79 project teams based on leader-member Exchange (LMX) Theory and Social Comparison Theory (SCT). The empirical results show that ethical leadership of team leaders moderates the relationship between leader-member exchange differences and team relationship conflict.

Wang (2019) conducted a cross-level empirical study on 72 teams .The result showed that ethical leadership positively moderated the relationship between team reflection and self-management, and further moderated the mediating mechanism of "team reflection—self-management—employee innovative behavior".

Based on the effectively matched questionnaires of 66 groups of teams, Kong (2020) showed that ethical leadership negatively moderated employees' psychological uncertainty and change resistance as well as their three dimensions.

Ethical leadership is a leadership style in which leaders show their subordinates what is standard and appropriate behavior in the organization through their own behavior and interpersonal interaction. The ethical leadership style with example learning behavior can effectively affect the ethical behavior of the teachers.

According to social learning theory, individuals' knowledge of behavioral norms mainly comes from the others around them. They will observe and imitate the behaviors of the demonstrators and build their own cognitive framework . It can guide them to implement these behaviors more accurately (Monks, Conway, 2016). According to the theory, this thesis believes that college and university teachers will learn and imitate the behaviors of leaders in the workplace, and adjust and standardize their own behaviors by observing the rational behaviors of leaders. Therefore, through the social learning behavior of team members, ethical leadership can have a cross-level influence on subordinates' behavior.

In the case of high ethical level of colleges and universities leaders, the subordinates are more likely to be the person with excellent ethical character (Brown, Trevio, Harrison, 2005) It will promote teachers to constantly correct their negative work behaviors . By carrying out innovative activities and other positive organizational behaviors to get the attention of leaders, so as to achieve the improvement of innovative behavior ability. At the same time, ethical leadership is easy to listen to and accept employees' suggestions during implementation, and endow employees with autonomy and discourse power, which is conducive to stimulating employees' internal motivation (Liang , 2014).

On the contrary, when the moral level of the group chief is low, the leader is not good at listening to the opinions of teachers. The leader has a psychological exclusion to teachers. Therefore, the results of work engagement are difficult to be adopted by leaders. And over time, teachers will lose the motivation to engage in work.Their innovative behaviors will be hindered.

In light of the above mentioned, this thesis proposes the accompanying hypothesis:

Hypothesis 6: Ethical leadership moderate between teachers' work Engagement and teachers' innovative behavior in college and university.

Hypothesis 7: The moderating effect of ethical leadership is different between administrators staff and teaching staff in college and university.

Ⅳ.Questionnaire design and Research Methodology

In order to study the relationship of variables and its mechanism deeply and effectively, this thesis not only needs to establish a model based on previous literature results and rationally deduce theoretical hypotheses, but also needs to verify whether the theoretical model is correct and the hypothesis can be established through quantitative research. Considering the particularity of colleges and universities teachers in this thesis, questionnaire survey is used to obtain data samples required for empirical research.

4.1 Questionnaire design and basic content

This thesis mainly through the questionnaire to collect data, so the questionnaire design is the first step in data analysis.

The questionnaire should be ensure the feasibility, scientificity, rigor, rationality and validity. The actual test is carried out in a small range when the questionnaire is designed in line with this thesis. And finally the questionnaire of “The Influence of Organizational justice, ethical Leadership and Work Engagement on Teachers' Innovative Behavior in Colleges and Universities” is determined.

This thesis mainly focuses on the influencing factors of teachers’ innovative behavior. According to the relevant content mentioned above, the variables to be measured in the questionnaire include Organizational justice, teachers' work engagement, ethical leadership in colleges and universities, and teachers’ innovative behavior. Based on the research purpose and content, this thesis designed the specific directions of the questionnaire, including:

(1) Basic information and related information of the research object, including gender, marital status, the type of the colleges/ university ,education level, working years at the colleges/university, current position, current income level, the average working hours per week, discipline;

(2) The fair development of the university organization of the research object;

(3) The work engagement of the research object;

(4) The ethical leadership of the colleges/university where the research object resides;

(5) The situation of the research object's output innovative behavior.

4.2 Research scale selection

For enterprises, there are mature and effective scales in the research fields of Organizational justice, ethical leadership, work engagement and innovative behavior. However, in colleges and universities, the applicability of scales is bound to decrease as the application environment changes. Therefore, according to the existing scales and the actual situation of colleges and universities, this thesis develops the scales of Organizational justice, ethical leadership, and work engagement and teacher innovative behavior. The specific measurement scales are shown in the appendix.

1. Organizational justice Scale

This thesis used the Organizational justice scale . It is designed by Colquitt (2001). The scale consists of four dimensions with a total of 20 items. The Procedural Justice dimension includes 7 items. The Distributive Justice dimension includes 4 items. The Interpersonal Justice dimension includes 4 items. The information justice dimension includes 5 items. The Likert five-point are used to score, and 1-5 points are given from completely disagree to completely agree. All items are scored positively.

2. Ethical Leadership Scale

This thesis adopts the single-dimensional scale. It is designed by Brown（2005）.The scale includes a total of 10 items. For example, “My leader will listen to some necessary opinions of employees” and “my leader cannot tolerate those employees who violate ethical standards”. The scale adopts the Likert five-point.

3. Teachers’ work engagement scale

This thesis adopts the Utrecht Work Engagement Scale (UWES) . It is created by Schaufeli and Bakker in 2002. The scale contains 3 dimensions and 15 items, including Vigor dimension （5 items）, Dedication dimension（5 items）and Absorption dimension（5 items）.

Considering the applicability of the scale in different contexts, Zhang Y.W. and Gan Y.Q. conducted a reliability and validity test on the Chinese version of UWES in 2005, and found that all indicators met the requirements of psychometrics, which was widely used in China later. In order to match this scale with teachers work background, this thesis makes some appropriate adjustments to its content.

4. Teachers' innovative Behavior Scale

This thesis adopts the measurement Instrument of Innovative behavior by Messmann and Mulder (2011). Combined with the characteristics of colleges and universities, the final scale contains 5 dimensions and 18 items, including 5 items of OE (Opportunity Exploration), 3 items of IG (idea Generation), 3 items of IP (Idea Promotion),3 items of IR (Idea realization) and 4 items of RE (Reflection).

4. 3 Research Methodology

Based on the theories of Organizational justice, ethical leadership, work engagement and innovative behavior, combined with the actual situation of college and university teachers, this thesis determines the main research contents, and establishes and improves the research model. At the same time, this thesis uses SPSS, AMOS and other analysis software to deeply mine the questionnaire, which provides strong data support for the research conclusions. The specific application methods are as follows:

1. Literature research method

Literature research is to collect and analyze the existing literature in the form of words and numbers, so as to discuss and analyze various social behaviors, relationships and other social phenomena. By searching, collecting, sorting out and organizing the relevant literature on

Organizational justice, ethical leadership, work engagement and innovative behavior in CNKI, Wan fang database, VIP Chinese journal database and common foreign databases, this thesis determines the research direction through induction, constructs the research framework between relevant variables such as university teachers' innovative behavior, and establishes and improves the research model accordingly.

2. Questionnaire method

Questionnaire survey, also known as written survey or form-filling , is an indirect means of collecting research data in written form. The questionnaire survey mainly obtains the data needed in the empirical research by designing and issuing questionnaires to the target objects.

In order to guarantee the quality of the questionnaire survey, to ensure good validity and reliability in empirical analysis. Firstly, a large number of master’ s and doctoral dissertations and related books at home and abroad are read, classified, counted and summarized. Secondly, on the basis of the existing mature and verified mature theoretical achievements of scholars at home and abroad, the mature theoretical research scale with high acceptance, recognition and utilization rate is used for reference. As a result, the research content of this thesis and the actual situation of college and university teachers are modified and improved. Finally, a measurement questionnaire consistent with the research content of this thesis is designed.

3. Statistical analysis method

The main data methods used in this thesis include descriptive analysis, factor analysis, correlation analysis, and SEM is used to estimate the correlation path coefficient between variables.

Firstly, factor analysis and correlation analysis are used to explore the dimensions and influencing factors of Organizational justice, ethical leadership, teachers' work engagement, teachers' innovative behavior in colleges and universities.

Secondly, SEM is constructed to quantitatively fit the relationship between variables, and the hypothesis is verified and analyzed. Finally draw relevant conclusions.

4.4 Small sample pre-survey

In order to guarantee the effectiveness of the questionnaire, the preliminary version of the questionnaire will be used for a small sample pre-survey, and more accurate measurement items will be optimized according to the results. The specific steps of pre-survey are as follows:

1. Preliminary construction

On the basis of relevant research and experience, the hypothesis relationship between variables is determined, the structural equation model is constructed in line with the practical significance, the appropriate measurement indicators are selected, and the validity of the model is identified, that is, the observed data is obtained through estimation to ensure the normal fitting of the model.

2. Reliability analysis

Reliability analysis refers to the credibility of the test. This study adopts the most commonly used Cronbach coefficient. This reliability coefficient can explain how much proportion of the variation of scores obtained by the scale in a certain level is determined by the true score, so as to reflect the degree to which the scale is affected by the immediate error and the reliability of the test. This thesis studies Organizational justice, ethical leadership, teachers ' work engagement and teachers ' innovative behavior in colleges and universities. Because of the wide distribution of research objects, reliability analysis should be completed to quantify the interior consistency of the scale.

The collected relevant dimension data are standardized and unified, and the reliability test is carried out by SPSS25.0.According to the relevant statistical knowledge of operational research, the unwavering quality of the scale is tried by Cronbach coefficient. Cronbach reliability coefficient reflects the internal consistency of the evaluation questionnaire. The value of α coefficient is between 0 and 1. The higher the value of α coefficient, the higher the reliability. If α coefficient is greater than 0.7, the measurement index has high reliability, and

the questionnaire has use value. If the coefficient α is between 0.35 and 0.7, it indicates that the reliability is moderate and the use value of the questionnaire is general; if α coefficient is below 0.35, it shows that the unwavering quality is low and the questionnaire has no use value.

3. Validity analysis

Validity analysis refers to the analysis of the validity of the questionnaire measurement results, that is, to consider whether the measurement results of the questionnaire can reflect the objective reality it should reflect.

Validity analysis usually involves three steps:

(1) To judge whether the questionnaire is suitable for factor analysis, the KMO value of Bartlett's spherical test can be used to test the correlation between variables. The commonly used evaluation criteria are shown in Table 4.

<Table: 4> Meaning of KMO and Bartlett's test

Test category	value range	meaning
KMO	＞0.9	fit well
	0.8-0.9	fit
	0.7-0.8	common
	0.6-0.7	Low fitness
	＜0.6	very low fitness
Bartlett P	□0.01	fit

(2) Factor concentration analysis. According to the variance explanation rate (the amount of information that can be explained by a single factor) and the total variance explanation rate (the sum of all factors can explain the amount of information of the whole questionnaire)

(3) Analysis of the corresponding relationship between factors and items. Through rotation factor analysis, for example, factor loading coefficient >0.4, the relationship between item and factor is relatively close.

A sum of 50 questionnaires were disseminated in the pre-overview of this thesis, of which 42 were legitimate.

Firstly, the reliability of the pre-test questionnaire was analyzed. The results showed that the Cronbach coefficient of the questionnaire was 0.918, greater than 0.9. The overall reliability

was very good, and the measurement items had high internal consistency. Based on this conclusion, the reliability analysis of Organizational justice scale, Teacher work engagement Scale, University ethical leadership scale and teacher innovative behavior scale was further carried out in this study. The Cronbach coefficients were 0.883, 0.939, 0.820 and 0.906 respectively, all greater than 0.8. It further checked that the overall unwavering quality of the questionnaire is great.

Secondly, the corresponding validity analysis was carried out. Considering that there are many item indexes involved in variable measurement, some indexes reflect little information, and some indexes may have defects, it was necessary to use principal component analysis to screen all indexes.

Data show that the KMO value of Organizational justice factor was .929, Bartlett spherical test sig <.05, factor model extracts four principal components. The variance contribution rate of the first principal component was 42.613%. The total variance of the four common factors extracted was 65.451%. The first factor has a large load in Distributive_Justice. The second factor has a large load in Interpersonal_Justice . The third factor had a large load in Informational Justice. The fourth factor had a large load in Procedural Justice . The factor load values of PJ4,PJ5,PJ7 in Procedural Justice were less than 0.5.The factor load values of IJ1 and IJ 2 in Informational_Justice were less than 0.5. So they were deleted.

The KMO value of ethical Leadership factor was .920, Bartlett spherical test sig <0.05. The variance contribution rate of the first principal component was 55.131%. The total variance of two principal components was 65.795%. Factor load values are all greater than .5.

The KMO value of the work engagement factor is .958, the Bartlett spherical test sig. is <0.05. The variance contribution rate of the first principal component was 47.642%. The total variance of three principal components is 56.002%. The first factor has a large load in Vigor and Dedication, and the second factor has a large load in Absorption. Among them, the factor load values of vigor 4 in Vigor, dedication 5 in Dedication, and absorption 3 in Absorption were less than 0.5. So they were deleted.

The KMO value of innovative behavior factor was .963, >0.9, Bartlett spherical test sig

< .05. The variance contribution rate of the first principal component was 55.606%. The total variance of three principal components was 66.045%. The first factor was a large load at idea Realization. The second factor was a large load at Opportunity Exploration. The third factor was a large load at idea Promotion. The factor load value of opportunity exploration 5 of opportunity exploration and reflection 2 of reflection were less than 0.5. So they were deleted.

As a result, more accurate formal questionnaires were developed.

4.5 Issuing and recycling of formal questionnaires

The questionnaire is mainly conducted in 64 colleges and universities in Hebei Province of China——including Double Tops universities,common colleges and universities,Junior college, higher vocational colleges, independent colleges——covering all types of colleges and universities and all disciplines in Hebei Province. Teachers include teaching staff and administrative staff in the management department of colleges and universities.

An aggregate of 470 questionnaires were conveyed in the study, of which 450 were successfully recovered with a recovery rate of 95.74%. Among them, 416 valid questionnaires could be used as analysis samples, and the final effective questionnaire rate was 88.51%.

Ⅴ. Data analysis and hypothesis testing

The research design in the previous chapter provides reliable research data for empirical analysis in this chapter. SPSS25.0 and AMOS24.0 will be used for empirical analysis in this chapter. On the basis of descriptive statistics, EFA and CFA method were utilized to test the reliability and validity of variables. Pearson correlation analysis was utilized to investigate the relationship of factors.

Then, AMOS path analysis is carried out focusing on the causal relationship among variables. Finally, Bootstrap method is used to verify the mediating role of work engagement . Multiple linear regression (MLR) method is used to verify the moderating role of ethical leadership.

The hypotheses in chapter 3 are tested one by one as follows.

5.1 Descriptive statistical analysis

In this thesis, questionnaires were distributed through email and online social network software. To get more broad review information, the inclusion of the overviewed tests was extended to 64 colleges and universities from 11 urban communities in Hebei Province of China. A sum of 470 questionnaires were conveyed in the study, 450 of which were successfully recovered with a recovery rate of 95.74%. Among them, 416 valid questionnaires could be used as analysis samples, with an effective questionnaire rate of 88.51%.

The first part of the questionnaire makes a preliminary analysis of the personal information of college and university teachers, such as gender, age, education background, degree, income, working time and school type, so as to understand the distribution of each sample.

Table5 shows the consequences of descriptive statistical analysis.

<Table: 5> the table of Descriptive statistical analysis

variable	stratification variables	frequency	percent
Gender	Male	242	58.17%
	female	174	41.83%
Age	<25	23	5.53%
	26-35	200	48.08%
	36-45	129	31.01%
	46-55	41	9.86%
	>55	23	5.53%
Marital status	married	285	68.51%
	unmarried	131	31.49%
	divorced	0	0%
The type of the colleges/ university	“Double Tops” universities	69	16.59%
	common colleges and universities	253	60.82%
	Junior college	22	5.29%
	Higher vocational colleges	38	9.13%
	Independent colleges	28	6.73%
	others	6	1.44%
Education level	Doctor	179	43.03%
	Master	207	49.76%
	Bachelor	25	6.01%
	junior	5	1.2%
Working years	<2	78	18.75%
	3-5	133	31.97%
	6-9	55	13.22%
	10-15	62	14.9%
	16-20	40	9.62%
	21-25	16	3.85%
	25-30	14	3.37%
	>30	18	4.33%
Current position	teaching staff	269	64.66%
	administrative staff	147	35.34%
Income level	1000-2500RMB	1	0.24%
	2500-4000RMB	42	10.1%
	4000-7500RMB	272	65.38%
	>7500RMB	101	24.28%
	<8	14	3.37%

The average working hours per week	9-16	20	4.81%
	7-24	8	1.92%
	25-32	13	3.13%
	33-40	119	28.61%
	41-48	176	42.31%
	49-56	43	10.34%
	>56	23	5.53%
Discipline	Philosophy	20	4.81%
	Economics	37	8.89%
	Law	18	4.33%
	Pedagogy	45	10.82%
	Literature	22	5.29%
	History	21	5.05%
	Engineering	92	22.12%
	Agriculture	24	5.77%
	Medical	23	5.53%
	Military	3	0.72%
	Management	64	15.38%
	Art	19	4.57%
	Science	28	6.73%

5.2 Common method deviation test

As most of the data in this thesis come from questionnaires issued online, homology error is inevitable .In order to reduce homology error as much as possible, accurate and unambiguous statements are used in the questionnaire design. At the same time, the corresponding preventive measures are taken in the questionnaire design process and the determination of statistical methods. For example, to protect the anonymity of the respondents, reduce the guessing of the measurement questions, emphasize the anonymity of the questionnaire. In the questionnaire survey, time and space are separated to reduce the error caused by time and place as much as possible.

In the process of questionnaire, Harman single factor method is used to test the severity of homologous error in sample data.

Table 6 describes the analysis results.

<Table: 6> Homology error test

As can be seen from the table 6, PCA method extracted a total of 10 common factors,

Gradient	Initial eigenvalue			Extraction Sums of Squared Loadings		
	Total	Percentage of variance	accumulate percentage	Total	Percentage of variance	accumulate percentage
1	24.742	39.272	39.272	24.742	39.272	39.272
2	3.383	5.369	44.641	3.383	5.369	44.641
3	2.787	4.424	49.065	2.787	4.424	49.065
4	2.117	3.360	52.425	2.117	3.360	52.425
5	1.733	2.752	55.177	1.733	2.752	55.177
6	1.697	2.694	57.871	1.697	2.694	57.871
7	1.301	2.065	59.936	1.301	2.065	59.936
8	1.195	1.897	61.834	1.195	1.897	61.834
9	1.154	1.831	63.665	1.154	1.831	63.665
10	1.004	1.593	65.258	1.004	1.593	65.258

explaining 65.258% of the total variables. Among them, the variance explained percentage of the first common factor is 39.272%, less than 40%. None of the 10 factors could account for most of the variance, so it can be assumed that there was no significant common method bias in this scale.

5.3 Reliability analysis

To demonstrate the unwavering quality of the reexamined questionnaire, Cronbach coefficient test was utilized again to test the unwavering quality of the four scales.

Table 7 shows the overall α coefficients and dimension α coefficients of each scale in the questionnaire.

<Table: 7> Reliability measurement results of the scale

Variables	dimension	number of items	Cronbach's α	Overall αcoefficient
Organizational justice	Procedural Justice	4	.803	.925
	Distributive_Justice	4	.951	
	Interpersonal_Justice	4	.851	
	Informational Justice	3	.846	
Ethical Leadership	Ethical Leadership	10		.905
Work Engagement	Vigor	4	.776	.918
	Dedication	4	.849	
	Absorption	3	.761	
Innovative Behavior	Opportunity exploration	4	.879	.950
	Idea generation	3	.733	
	Idea promotion	3	.840	
	Idea realization	3	.787	
	Reflection	3	.865	

In table 7 ,the Cronbach α of Organizational justice is .925. The Cronbach α of ethical Leadership is .905. The Cronbach α of work engagement is .918. The Cronbach α of innovative behavior is .950. Both are more than 0.9, which is very reliable.

5.4 Validity analysis

Validity is the degree to which a test can measure the desired psychological or behavioral traits. In empirical analysis, most researchers evaluate the research quality through construct validity, statistical conclusion validity and internal validity. In order to improve the efficiency level as much as possible, different measures have been taken from many angles. First of all, this thesis has sorted out the theoretical results of variables in detail, integrated the consideration of multiple factors, and sorted out a clear concept definition. At the same time, not only the maturity scale, which has been used many times at home and abroad, but also Likert

method was used for measurement. In the pre-survey, some items with low factor load were deleted, so that the measurement error was well controlled. Furthermore, this thesis improved the content validity of the questionnaire by controlling for multiple control variables such as gender and age.

As mentioned above, the most ideal method of validity analysis is factor analysis. It can accurately measure the construction validity of the scale. In order to improve the level of validity of the thesis, CFA method will be used to process the sample data of the formal investigation to verify the path analysis coefficient between factors and the fitting degree of the action model. In this thesis. Amos 24.0 programming was utilized to construct a model with 52 items verified by the above data , and data analysis was carried out based on this, and the data obtained from the questionnaire was imported and run.

According to the chi-square value ratio of the overall fitting coefficient table, X^2/ DF, GFI, AGFI,CFI,NFI,RMR and RMSEA are within the range of good fit. If the value is within a reasonable range, the path analysis of the SEM can be started. The results are summarized as Table 8.

As can be seen from Table 8, GFI, CFI, NLI and NFI are all greater than 0.8; RMSEA value is 0.08, The CR values of Organizational justice, ethical leadership, Work engagement and innovative behavior are all greater than 0.8, and AVE values are all greater than 0.5. Based on the above indicators, it can be proved that the data and model have a good fit and high measurement validity.

5.5 Correlation analysis

Correlation analysis is a measurable technique to pass judgment on the relationship between's variables, which is utilized to test the closeness of the connection between factors. Correlation analysis is a prerequisite for testing causality between variables, which can determine the degree and direction of correlation between variables and provide important reference for hypothesis testing.

This thesis adopts Pearson correlation analysis to prelim natively explore whether there is a linear correlation between variables. The value of Pearson's coefficient ranges from -1 to 1. The positive and negative indication of the worth addresses the heading of connection between variables. The value absolute value reflects the degree of correlation between variables. The nearer the outright worth is to 1, the higher the connection of the variable. SPSS25.0 was used to analyze the results, as shown in Table 9.

<Table: 8> CFA fit index of scale in colleges and universities

variable	Items	standardized factor loading	CR	AVE
Organizational justice	Procedural Justice	.624	.80	.50
	Distributive_Justice	.77		
	Interpersonal_Justice	.672		
	Informational Justice	.76		
ethical leadership	ethical leadership1	.711	.90	.50
	ethical leadership2	.764		
	ethical leadership3	.827		
	ethical leadership4	.721		
	ethical leadership5	.814		
	ethical leadership6	.705		
	ethical leadership7	.554		
	ethical leadership8	.414		
	ethical leadership9	.811		
	ethical leadership10	.694		
Work engagement	Vigor	.807	.860	.67
	Dedication	.868		
	Absorption	.783		
Innovative behavior	Opportunity exploration	.875	.92	.71
	Idea generation	.831		
	Idea promotion	.777		
	Idea realization	.842		
	Reflection	.875		

Chi-square = 863.13, Degrees of Freedom = 203, x^2/ DF =4.25,
RMSEA =.08, GFI=.823,NFI=.867, CFI=.894, IFI=.895, TLI=.880

<Table:9> Correlation analysis of Organizational justice, ethical leadership, work engagement and innovative behavior of university teachers

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1.Procedural Justice	3.17	0.74	1												
2.Distributive_Justice	3.63	1.01	.432**	1											
3.Interpersonal_Justice	3.90	0.58	.404**	.399**	1										
4.Informational Justice	3.76	0.86	.489**	.526**	.438**	1									
5.Ethical Leadership	3.90	0.75	.478**	.636**	.449**	.595**	1								
6.Vigor	3.72	0.65	.556**	.474**	.391**	.498**	.512**	1							
7.Dedication	4.04	0.78	.367**	.630**	.338**	.535**	.593**	.707**	1						
8.Absorption	4.05	0.73	.285**	.554**	.309**	.448**	.546**	.573**	.711**	1					
9.opportunity exploration	4.08	0.73	.513**	.644**	.393**	.545**	.652**	.620**	.632**	.641**	1				
10.idea generation	3.92	0.75	.443**	.569**	.377**	.508**	.541**	.588**	.630**	.591**	.749**	1			
11.reflection	3.69	0.71	.517**	.550**	.369**	.508**	.582**	.688**	.608**	.593**	.736**	.719**	1		
12.idea promotion	3.63	0.70	.559**	.410**	.393**	.442**	.498**	.634**	.461**	.475**	.662**	.652**	.725**	1	
13.idea realization	3.80	0.78	.443**	.623**	.358**	.440**	.614**	.564**	.577**	.584**	.736**	.673**	.762**	.655**	1

**p<0.005 . *p<0.05

As can be seen, Organizational justice, ethical Leadership, and teachers' work engagement have significantly positively correlated with teachers' innovative behavior as a whole or from various dimensions.The correlation coefficient is between 0.3 and 0.8, which is highly positive. These data show that the actual relationship between variables is consistent with the direction of the hypothesis proposed in this study, which provides a certain basis for the verification of the hypothesis in the following thesis.

On this premise, to additionally investigate the causal connection between factors, the SEM is utilized to be taken on in the following stage for explicit examination.

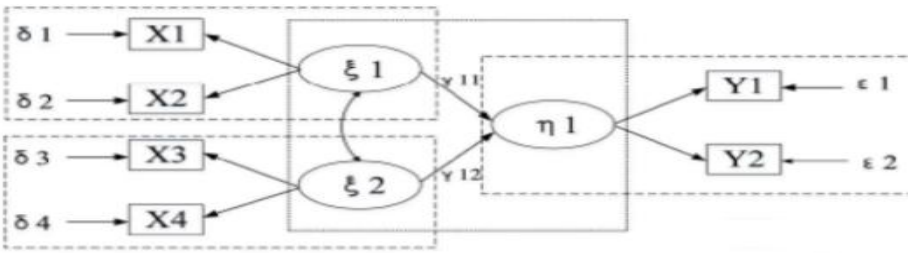
5.6 Hypothesis testing

SEM also known as covariance model, is a mathematical statistics method. It consolidates traditional factor analysis methods and regression analysis methods to estimate and verify the factor structure and the relationship between factors in multiple dependent variable models.

Structural equation model can be divided into two categories: estimation model and structural model. Estimation model refers to the linear function of observation variables on the basis of research, which is mainly composed of observation variables and potential variables. The observation variables are represented by rectangular symbols, and the latent variables are addressed by elliptic images.

Structural model mainly represents the relationship between potential variables, which usually has two kinds of direct effect and correlation effect. The example of structural equation model is shown in Figs.3.

<Figure:3> Structural equation model diagram



This method can identify, estimate and verify all kinds of causal model. It is the perfect combination of factor analysis and path analysis. It can be observed variables in the model, the relationships between the latent variables and error variables to test, then give the effect between independent variables and dependent variables, including detailed influence coefficient between each dimension. When describing structural equation models, most scholars usually adopt path graph, which is the most intuitive method.

Therefore, this thesis will use AMOS24.0 to present the model and analyze it through the path graph, and test the above assumptions based on the model fitting index and path coefficient obtained.

1.Test of the influence of Organizational justice and innovative behavior of university teachers

In this thesis, the relationship between Organizational justice and teachers' innovative behavior in colleges and universities will be explored in depth to fully test the main effect of Organizational justice and teachers' innovative behavior and the detailed path influence between each dimension. Table 10 show the corresponding model fitting index table and regression results.

<Table: 10> Regression results of Organizational justice dimensions and innovative behavior in colleges and universities

			Standardized Estimate	S.E.	C.R.	P
Innovative Behavior	<---	Organizational justice	.87	.068	13.497	***
	<---	Distributive_ Justice	.37	.036	7.141	***
	<---	Interpersonal_ Justice	.05	.033	1.357	***
	<---	Informational Justice	.22	.052	3.249	***
	<---	Procedural Justice	.32	.057	5.199	***

Chi-square = 545.21, Degrees of Freedom =160, x^2/ DF =3.40, RMSEA =.076, GFI=.876, CFI=.933, IFI=.934, TLI=.921

The regression results are displayed in Table 10. The standardized regression coefficients of Organizational justice in colleges and universities on teachers' innovative behavior are .87 (P < .001). It has a huge beneficial effect.

Hypothesis 1 is accepted.

The standardized regression coefficients of Procedural Justice, Interpersonal_Justice, Informational Justice and Distributive Justice are respectively .37 , .05, .22 and .32(P <.001). All had a significant positive effect .

Through data analysis, the model fitting index shown in Table 10. Chi-square= 545.21, Degrees of Freedom =160, x^2/ DF =3.40, RMSEA =.076, GFI=.876, CFI=.933, IFI=.934, TLI=.921, CFI, TLI, IFI and GFI are all greater than 0.8. It can be proved that the model fitting effect is good and acceptable. Therefore, Organizational justice and all dimensions have a significant impact on teachers' innovative behavior, and the influence degree from high to low are Distributive_Justice, Procedural Justice, information justice and Interpersonal_Justice .

Why? Firstly,In colleges and universities, teachers are generally lower income, and single source of income, the most high-profile is gained by the teachers pay and reward, according to equity theory, When teachers feel that the colleges and universities is fairly distributed, they give back and put forward new ideas to benefit the colleges and universities. colleges and universities development can make the innovative behavior of teachers' personal development.

Secondly, the organizational procedures justice is an indispensable prerequisite for teachers' innovative behavior, because the process of teachers' innovation, to some extent, is a challenge to the existing working methods and may face certain resistance. In such cases, if teachers can be authorized by fair procedures within the organization, they can be urged to strikingly attempt novel thoughts and advance innovative behaviors of teachers.

Thirdly,Since teachers' innovative behavior comes from employees putting forward new ideas beneficial to the school in their daily work, looking for resources for the advancement of groundbreaking thoughts, and advancing the execution of novel thoughts, all these processes need to obtain enough information inside the school, so information fairness is particularly

important.Whether teachers' rights and interests to obtain information are fair and whether the information obtained is accurate affects teachers' finding problems and putting forward new ideas to improve their work, thus affecting the occurrence of employees' innovative behaviors.

At the same time, Interpersonal_Justice means that the school fully respects teachers and can solicit their opinions when making decisions, which makes teachers feel that their ideas can be valued by the school. The feeling of being respected and recognized will promote teachers to put forward novel ideas and show innovative behaviors beneficial to the school.

Hypothesis 1a, 1b, 1c and 1d are accepted.

2.Test of the influence of ethical leadership on teachers' innovative behavior

The regression results of completely test the main impacts of ethical leadership and teachers' innovative behavior of the particular course in table 11.

<Table: 11> Regression results of ethical leadership and innovative behavior in colleges and universities

		Standardized Estimate	S.E.	C.R.	P
Innovative Behavior <---	Ethical Leadership	.73	.053	12.627	***

X^2/DF=4.59,RMSEA = .093, GFI=.875, CFI=.922, TLI=.908, IFI=.922

The regression coefficient of ethical leadership and teachers' innovative behavior in colleges and universities is 0.73 (P < .001). It is significant. It can prove that ethical leadership has a significant positive effect on teachers' innovative behavior in colleges and universities.

As can be seen from the data, X^2/DF=4.59, RMSEA value is .093, GFI=.875, CFI=.922, TLI=.908, IFI=.922, and each item in CFI, TLI, IFI and GFI is greater than 0.8. So the model fitting effect of ethical leadership on innovative behavior is good and acceptable.

Hypothesis 2 is accepted.

3.Test of the influence of Organizational justice and teachers' work engagement

In this thesis, the relationship between Organizational justice and teachers' work engagement in colleges and universities will be explored in depth, and the main effect will be fully tested as well as the detailed path influence between various dimensions. Table 12 show the corresponding model fitting index table and regression results.

<Table: 12> Regression results of Organizational justice and teachers' work engagement in colleges and universities

			Standardized Estimate	S.E.	C.R.	P
Work Engagement	<---	Organizational justice	.83	.055	12.228	***
	<---	Procedural Justice	.05	047	1.260	***
	<---	Distributive_ Justice	.45	.032	7.364	***
	<---	Interpersonal_ Justice	.05	.070	1.253	***
	<---	Informational Justice	.37	.057	4.520	***
X^2 /Df=491.729/125=3.94, RMSEA =.08, GFI=.877, CFI=.923, TLI=.906, IFI=.924						

Form Table 12. It can be seen that, the regression coefficient of Organizational justice in colleges and universities and teachers' work engagement is 0.83, (P<.001). It is significant. It can prove that Organizational justice in colleges and universities and teachers' work engagement innovative behavior has a critical positive impact.

Hypothesis 3 is accepted.

The standardized regression coefficients of Procedural Justice on teachers' work engagement is .05 (P<.001).The coefficients of Distributive_Justice on teachers' work engagement is .45 (P <.001). The coefficients of Interpersonal_Justice on teachers' work engagement is .05 (P<.001). The coefficients of Procedural Justice on teachers' work engagement is .37 (P <.001). All have a huge beneficial effect on teachers' innovative behavior.

Through data analysis, the model fitting index shown in Table 10. Index X^2/ Df=491.729/125=3.94, RMSEA value is .08, GFI=.877, CFI=.923, TLI=.906, IFI=.924, CFI, TLI, IFI, GFI are all greater than 0.8. It tends to be demonstrated that the fitting impact of the model is great and acknowledged.

Hypothesis 3a, 3b, 3c and 3d are accepted.

4.Test of the influence of work engagement on teachers' innovative behavior

This thesis will investigate the connection between teachers' college and university work engagement and teachers' innovative behavior in depth, and fully test the main effect of work engagement on teachers' innovative behavior in college (university) and the detailed path influence between various dimensions. Table 13 show the corresponding model fitting index table and regression results.

<Table:13> Regression results of work engagement and innovative behavior

	Standardized Estimate	S.E.	C.R.	P
innovative behavior<--- Work Engagement	.858	.059	16.161	***
innovative behavior<---vigor	.556	.054	9.629	***
innovative behavior<---absorption	.489	.050	7.924	***
innovative behavior<---dedication	.266	.029	5.965	***
Chi-square = 359.361, Degrees of Freedom =98, RMSEA =.080 GFI=.898, CFI=.937, TLI=.922, IFI=.937				

Form the Table 13. the regression coefficients of Work Engagement on teachers' innovative behavior is .858 (P<0.001).The coefficients of vigor on it is .556 (P <0.001).The coefficients of absorption on it is .489 (P <0.001).The coefficients of dedication on it is .266 (P <0.001).

It is significant. It can prove that all dimensions of teachers work engagement have significant positive effects on teachers' innovative behavior.

Hypothesis 4 is accepted.

The model fitting index shown in the figure above is shown in Table 13.

Chi-square=359.361, Degrees of Freedom=98, RMSEA=.080, GFI=.898, CFI=.937, TLI=.922, IFI=.937, CFI, TLI, IFI and GFI are all greater than 0.8. It can be proved that the model fitting effect is good and acceptable.

Hypothesis 4a, 4b and 4c are accepted.

5.The mediating role of teacher work engagement in Organizational justice and teacher innovative behavior

In this thesis, Bootstrap method（Bradley,1979）was utilized to test the mediating effect of work engagement. The Bootstrap method is a test method that generates multiple samples through repeated sampling with back. The test power of the Bootstrap method is higher, and the test statistics are not required to follow the normal distribution. Zhong L.W. (2014) update the inspection process of the mediating effect. It's operation steps include:

Test the influence coefficient c of independent variable on dependent variable.

Test the influence coefficient a of independent variable on intermediate variable.

Test the influence coefficient b of the intermediate variable on the dependent variable .

Test the influence coefficient c ' of independent variable on dependent variable after the addition of mediating variable.

To sum up, after all variables were centrally processed, the SPSS macro "PROCESS" developed by Hayes (2013) was used to test the mediation effect of the model. We select the corresponding Model 4, set Bootstrap sampling to 5000 times, 95% confidence interval, and sampling method to nonparametric percentile of deviation correction. Finally, run the data, and the analysis results of the mediating effect are displayed in Table 14.

<Table: 14> the mediating effect of work engagement on the relationship between Organizational justice and teachers' innovative behavior

variable	Model 1				Model 2			
	work engagement				innovative behavior			
	coeff	SE	LLCI	ULCI	coeff	SE	LLCI	ULCI
(constant)	1.7268	.3006	1.1358	2.3177	.3115	.2457	-.1716	.7946

Sex	-.0303	.0501	-.1288	.0681	-.0434	.0394	-.1208	.0340
Age	-.0359	.0554	-.1448	.0729	-.0220	.0435	-.1076	.0635
Martials	.0200	.0628	-.1035	.1434	.0392	.0494	-.0578	.1362
Level	-.0082	.0229	-.0533	.0369	-.0243	.0180	-.0597	.0112
Education	-.0068	.0512	-.1075	.0939	-.0775	.0403	-.1566	.0017
Work Experience	.0082	.0283	-.0474	.0638	.0311	.0222	-.0125	.0748
Position	-.1348	.0606	-.2539	-.0157	.0777	.0479	-.0165	.1718
Income	-.0013	.0561	-.1116	.1091	-.0095	.0441	-.0963	.0772
Working hours	.0320	.0166	-.0007	.0647	.0340	.0131	.0082	.0598
Discipline	.0026	.0067	-.0106	.0157	-.0065	.0053	-.0169	.0038
Organizational justice	.6802	.0393	.6030	.7574	.4057	.0408	.3255	.4858
work engagemen					.5023	.0392	.4254	.5793
R^2	.4852***				.6912 ***			
F	34.60				75.16			

*** p<0.001 ** P <0.01 * P <0.05.

Form Table 14, Organizational justice has a positive impact on work engagement (Coeff =.6802, P <.001) in M1, which is another evidence for the establishment of hypothesis 3. In M2, it very well may be seen that work engagement emphatically affects teachers' innovative behavior (Coeff =.4057, P<.001), which again verifies the establishment of hypothesis 4. After the addition of mediating variables, the effect of Organizational justice on the innovative behavior of dependent variables still exists (Coeff =.5023, P <0.01).

<Table: 15> the indirect effect of Organizational justice on innovative behavior

	Effect	BootSE	Boot LLCI	Boot ULCI
Organizational justice -> work engagement ->innovative behavior	.3428	.0478	.2559	.4456
Distributive_Justice -> work engagement ->innovative behavior	.3789	.0368	.3088	.4510
Procedural Justice -> work engagement ->innovative behavior	.2886	.350	.2214	.3560

Interpersonal_Justice -> work engagement ->innovative behavior	.2748	.0324	.2122	.3377
Informational_Justice -> work engagement ->innovative behavior	.3702	.0385	.2943	.4464

In table15, the indirect effect of innovative behavior on Organizational justice is 0.3428 (P<.001).The indirect effect of innovative behavior on the work engagement through Distributive_Justice is .3789 (P<.001). The indirect effect of innovative behavior on the work engagement through Procedural Justice is .2886 (P<.001). The indirect effect of innovative behavior on the work engagement through Interpersonal_Justice is .2748 (P<.001). The indirect effect of innovative behavior on the work engagement through Informational_Justice is .3702 (P<.001).

Since the confidence interval of the direct effect of teacher innovative behavior on work engagement still does not contain 0 after the expansion of the mediating variable—work engagement—plays a fractional interceding job between Organizational justice and the teacher innovative behavior.

Hypothesis 5 is accepted.

6. Test of the moderating effect of ethical leadership on teachers' work engagement and innovative behavior

According to the moderating effect analysis process suggested by Wen (2005), this thesis centralizes the independent variable and the moderating variable (Aiken & West,1991). Then multiply independent variables and moderating variables to form new variables (Ethical Leadership*Work Engagement). Regression analysis was utilized to test the mediating effect of the model.

First, the decentralized value of the independent variable (teacher's work engagement) was included in the regression equation. Second, the decentralization value of the moderating variable (teachers' innovative behavior) was included in the second layer of the regression equation. Finally, the ethical Leadership*Work Engagement of independent variables and

moderating variables is included in the third layer of regression equation. The specific test results are as follows:

<Table: 16> The moderating effect of ethical leadership on work engagement and innovative behavior

Model	variable	innovative behavior		
		B	T-Value	P
	(constant)	3.807	174.464	.000
Model 1	Work Engagement	.393	14.963	.000
	Ethical Leadership	.194	7.939	.000
Model 2	Work Engagement*Ethical Leadership	.031	1.836	.067
statistics	R^2		.644	
	ΔR^2		.003	
	F		247.928	

In table 16, Model 1 is the prediction of ethical Leadership and Work Engagement for Innovative Behavior, and model 2 adds an interaction term. It is the prediction of Innovative Behavior by ethical Leadership*Work Engagement.

From R^2, the explanation rate of ethical Leadership and Work Engagement to Innovative Behavior was 64.4%. In Model 2, the prediction rate increases by 0.003, while the independent variable and the moderating variable remain unchanged. This increase is the prediction ability of the mutual term for the dependent variable.F value is significant.

As can be seen from the value of the coefficient in Table 16, the interaction coefficient between work engagement and ethical leadership is .031 (P=.067, not significant), and the interaction effect is not obvious.

Therefore, the moderating effect of ethical leadership on the impact of work engagement and teachers' innovative behavior is not obvious.

Hypothesis 6 is rejected.

Because, firstly, the study of ethical leadership mechanism is mainly centered around the impact of ethical leadership directly, to the most common ethical leadership as antecedent

research, but in practice, the moral leading force for staff main situational factors play a role as an organization, the adjustment between variables is very important, But there are too few previous studies to draw on.

Secondly, different types of universities also have high and low differences in the behavior of teachers' moral leaders. According to the core view of role theory, Liu, Liao, Derfler-Rozin, Zhen, Wee&Qiu(2020) point out: Employees with higher moral ownership are probably going to exhibit lower innovative behaviour. Generally speaking, the ethical leadership of high-level university teachers is stronger. Hebei Province, the region investigated in this thesis, has a small number of high-level universities, which has a certain impact on the analysis results.

Finally, in the same school, the ethical leadership of teachers is different. Generally, organizational leaders and managers have higher ethical leadership than ordinary employees. In this thesis, administrators and teaching staff in colleges and universities are surveyed simultaneously, and the research on ethical leadership is generally located at one level. The lack of research on ethical leadership from both groups and individuals leads to unclear research results.

Therefore, the moderating mechanism of ethical leadership needs to be further deepened. The research of this thesis on the moderating effect of ethical leadership on work engagement and innovative behavior is a new attempt.

Next, this thesis studies the relationship between its variables from different levels of university administrative staff and teaching staff.

5.7 Comparative analysis of teaching staff and administrative staff

For the convenience of statistical analysis, the teaching staff of this thesis refers to full-time teachers who undertake teaching and scientific research tasks in the front line of teaching,. The administrative staff refers to the personnel engaged in management of the administrative department, including the management staff of teaching units, staff of teaching auxiliary units ,counselors and those who serve in the back office.

1. Direct effect comparative analysis

Regression analysis is to trace which independent variables are related to the change of the dependent variable. On the off chance that there is a connection between's the difference in the dependent variable and the difference in the independent variable, the independent variable may be the cause of the dependent variable. The purpose of MLR is to explore whether the change of two or more independent variables has independent and non-random influence on the change of the same dependent variable. Its ultimate purpose is : to approach reality and build a model that describes reality to the maximum extent; Simplify the reality and build the simplest model.

This thesis adopts MLR to analysis the impact of Organizational justice, work engagement and ethical leadership on innovative behavior.The analysis results are displayed in Table 17.

（1）Analysis of the impact of Organizational justice on innovative behavior

In table 17, the first dependent variable that enters the regression equation is Distributive Justice,the second is Procedural Justice, and the third is Informational Justice. Interpersonal Justice was dismissed.

Collinearity diagnosis: From the last two columns of the table 17, the tolerance of Distributive_Justice, Procedural Justice and Informational_Justice are all greater than 0.5, and VIF is less than 10, so it can be shown that there is no nonlinearity between independent variables. The adjusted decision coefficient R^2 is good, so it tends to be seen that the fitting impact of the model is great. According to the ANOVA table, F-value of the regression model is meaningful, so it is considered that the regression model has statistical inferential significance. According to the coefficient table, the probability P-value corresponding to the T-value of each independent variable is less than .005, so we believe that each independent variable also has statistical inference significance.

For teaching staff, the regression coefficients of Distributive Justice to innovative behavior is .344 (P<.001).The regression coefficients of Procedural Justice to innovative behavior is .265 (P<.001). While for administrative staff, the regression coefficients of the two were .105

and .237 (P<.001). It indicates that teaching staff had more significant influence than administrative staff.

For teaching staff ,the regression coefficients of Informational_Justice to innovative behavior behavior is .108(P<.001), while for administrative staff, the regression coefficient is .237(P<.001). The influence of administrative staff is more obvious than that of teaching staff.

(2) Analysis of the influence of work engagement on innovative behavior

According to ANOVA table, F of the regression model is significant, P=0.000, so it is considered that the regression model has statistical inferential significance. According to the coefficient table, the corresponding probability P-value of T-value of each independent variable is less than 0.05, so we believe that independent variable also has statistical inference significance. For teaching staff, the regression coefficients of work engagement to innovative behavior is .878, while for administrative staff ,the regression coefficient is .631. The influence of teaching staff is more obvious than administrative staff.

(3) Analysis of the impact of ethical Leadership on innovative behavior

For teaching staff, the regression coefficients of ethical Leadership to innovative behavior is .601, while for administrative staff, the regression coefficient is .487. The influence of teaching staff has more obvious than administrative staff.

2 .Comparative analysis of mediating effect

Similarly, after all variables are centrally processed, the PROCESS model developed by Hayes (2013) is used to test the mediating effect. Table 18 shows the analysis results.

<Table: 17> Comparison of direct effect regression results between Administrative staff and Teaching staff

variable		Dependent Variable:innovative behavior									
		Administrative staff (N=147)					Teaching staff (N=269)				
		coefficient	T-value	P	Tolerance	VIF	coefficient	T-value	P	Tolerance	VIF
Independent Variable	Distributive Justice	.105	2.039	.003	.712	1.404	.344	.344	.000	.599	1.669
	Procedural Justice	.237	3.681	.000	.685	1.460	.246	.246	.000	.669	1.494
	Informational Justice	.237	3.795	.000	.593	1.687	.108	.108	.002	.663	1.509
	Interpersonal Justice	.132	1.479	.141	.663	1.507	.058	1.277	.203	.769	1.300
statistics	F	31.573					149.720				
	R^2	.386					.625				
Independent variable	work engagement	.631	11.126	.000	-	-	.878	22.764	.000	-	-
statistics	F	123.780					518.218				
	R^2	.457					.659				
Independent variable	Ethical leadership	.487	8.152	.000	-	-	.601	15.955	.000	-	-
statistics	F	66.463			122.396		254.548				
	R^2	.310			.539		.486				

<Table: 18> Contrast of mediating effect between administrative staff and Teaching Staff

variable	Teaching staff (N=269)								Administrative staff (N=147)							
	Model 1				Model 2				Model 1				Model 2			
	work engagement				innovative behavior				work engagement				innovative behavior			
	coeff	SE	LLCI	ULCI	coeff	SE	LLCI	ULCI	coeff	SE	LLCI	ULCI	coeff	SE	LLCI	ULCI
constant	1.8133	.3415	1.1408	2.4858	-.4015	.2650	-.9235	.1204	.9489	.5072	-.0542	1.9519	1.2304	.4246	.3906	2.0702
Sex	-.0409	.0564	-.1519	.0700	-.0071	.0416	-.0889	.0748	.0348	.0993	-.1616	.2313	-.1044	.0822	-.2668	.0581
Age	-.0054	.0650	-.1334	.1226	-.0477	.0479	-.1420	.0466	-.0780	.1037	-.2831	.1272	-.0030	.0859	-.1729	.1669
Martials	-.0605	.0695	-.1974	.0763	.0626	.0513	-.0384	.1636	.1371	.1297	-.1194	.3937	.0003	.1076	-.2126	.2132
Level	-.0430	.0309	-.1038	.0177	-.0042	.0228	-.0491	.0408	.0236	.0384	-.0525	.0996	-.0238	.0318	-.0867	.0391
Education	.0293	.0605	-.0898	.1485	-.0680	.0446	-.1558	.0198	-.0016	.0998	-.1990	.1959	-.0443	.0825	-.2075	.1189
Work Experience	-.0165	.0350	-.0854	.0524	.0390	.0258	-.0118	.0897	.0619	.0501	-.0372	.1609	.0299	.0416	-.0524	.1123
Income	-.0713	.0674	-.2041	.0615	.0474	.0498	-.0506	.1455	.1048	.1020	-.0968	.3065	-.0748	.0846	-.2421	.0925
Working hours	.0600	.0225	.0156	.1044	.0649	.0168	.0317	.0981	-.0026	.0273	-.0567	.0515	.0103	.0226	-.0344	.0550
Discipline	-.0028	.0074	-.0174	.0119	-.0040	.0055	-.0148	.0067	.0118	.0134	-.0147	.0382	-.0110	.0111	-.0329	.0109
Organizational justice	.6813	.0447	.5932	.7694	.4190	.0455	.3295	.5085	.6791	.0779	.5250	.8332	.3517	.0805	.1924	.5109
work engagement					.5586	.0460	.4681	.6491					.4510	.0711	.3103	.5917
R^2	.5204***				.7778***				.4264 ***				.5504***			

*** p<0.001 ** P <0.01 * P <0.05.

From Table 19, after work engagement is added, for Teaching staff, Organizational justice of independent variable still has an impact on innovative behavior of dependent variable (Coeff=.5586, P<.01). For Administrative staff, the influence of Organizational justice on the dependent variable innovative behavior still exists (Coeff =.4510, P <.01).

<Table: 19> the indirect effect of Organizational justice on innovative behavior of administrative staff and teaching staff

	Administrative staff (N=147)				Teaching staff (N=269)			
	Effect	BootSE	LLCI	ULCI	Effect	BootSE	LLCI	ULCI
Distributive_Justice -> work engagement ->innovative behavior	.2361	.0514	.1431	.3451	.2521	.0304	.1963	.3164
Procedural Justice -> work engagement ->innovative behavior	.1768	.0498	.0863	2.842	.3165	.0367	.3165	.0367
Interpersonal_Justice -> work engagement ->innovative behavior	.2820	.0663	.1592	.4198	.2880	.0504	.1917	.3911
Informational_Justice -> work engagement ->innovative behavior	.2261	.0568	.1276	.3491	.2968	.0361	.2269	.3689

From the table 19, for the Administrative staff, the indirect effect of Distributive_Justice, Procedural Justice, Interpersonal_Justice, Informational_Justice on innovative behavior through work engagement are respectively 0.3428,.1768, .2820 ,.2261 (P<.001). While for the teaching staff, these four values are respectively .2521,.3165,.2880,.2968. (P<.001)

Since the confidence interval of the direct effect of teacher innovative behavior on the dependent variable work engagement still doesn't contain zero after the expansion of the mediator, the mediating variable—work engagement，plays an incomplete mediating role between Organizational justice and the teacher innovative behavior.

3 .Comparative analysis of moderating effects

Similarly, for administrative staff and teaching staff, regression analysis was used to test the moderating effect of ethical leadership. The specific test results are as follows:

<Table: 20> Comparative analysis of the moderating effect of ethical leadership in administrative staff and Teaching Staff

IDV	innovative behavior					
Type	Administrative staff (N=147)			Teaching staff (N=269)		
DV	B	T-Value	P	B	T-Value	P
(constant)	3.460	45.958	.000	3.936	175.524	.000
Work Engagement	.388	7.824	.000	.367	13.440	.000
Ethical Leadership	.160	3.232	.002	.203	8.094	.000
Work Engagement* Ethical Leadership	.197	3.125	.001	-.0071	-1.799	.073
R^2	.538			.730		
ΔR^2	.015			.003		
F	41.277			242.097		

In table 20, model 1 is the prediction of ethical Leadership and Work Engagement for Innovative Behavior. Model 2 adds an interaction item. It is the prediction of Innovative Behavior by ethical Leadership, Work Engagement and ethical Leadership*Work Engagement.

From R^2, the explanation rate of administrative staff, ethical Leadership and Work Engagement to Innovative Behavior is 53.8%. In Model 2, the prediction ability increases by 0.015, while the independent variable and the moderating variable remain unchanged. This increase is the prediction ability of the mutual term for the dependent variable. F value is significant.

The explanation rate of teaching staff, ethical Leadership and Work Engagement to Innovative Behavior is 73%. In model 2, the predictive power increased by 0.003, which is not too significant.

From the coefficients in Table 29, for the administrative staff, the interaction coefficient between work engagement and ethical leadership was.113 ($P< .01$), which also reach a significant level. However, for teaching staff, the interaction coefficient between work engagement and ethical leadership is -.031 (p value is not significant) The effect of interaction

item is not obvious.

Therefore, for administrative staff, ethical leadership has a significant moderating effect on work engagement and teachers innovative behavior. That is, compared with low ethical leadership, high ethical leadership can improve the impact of work engagement on innovative behavior.

For teaching staff, the moderating effect of ethical leadership is not obvious.

Hypothesis 7 is accepted.

The reason is that leaders and managers of colleges and universities should have more prominent moral qualities than ordinary teaching staff, such as active and enterprising, strong sense of responsibility, impartiality, honesty, modesty and caution. Generally speaking, organizational administrative staff have higher ethical leadership than ordinary teaching staff. Administrative staff ethical leadership has a significant moderating effect on teachers' work engagement and innovative behavior.

In order to display the moderating effect intuitively, this thesis adds and subtracted a label difference from the mean of moderating variables respectively, and describes the relationship between work engagement and innovative behavior under the condition of ethical leadership. As can be seen from the figure 4 and 5, for administrative staff, ethical leadership promotes managers' innovative behavior to a greater extent through work engagement.

Figure 4: The moderating effect of administrative staff ethical leadership

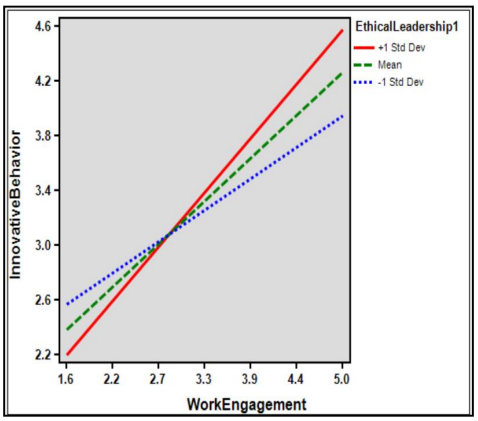
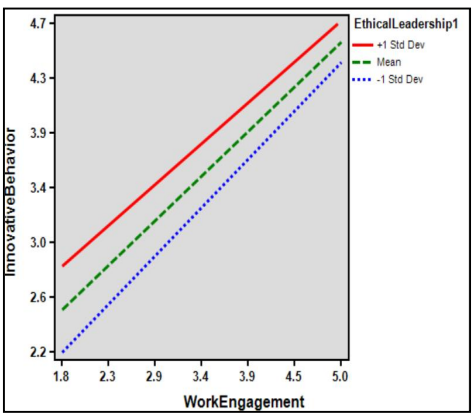


Figure 5: The moderating effect of teaching staff ethical leadership



<Table: 21> Comparison of ethical leadership moderating effects between administrative staff and teaching staff

	Dependent	Independent	Moderation: Ethical Leadership	Effect	S.E.	Boot LLCI	Boot ULCI
Administrative staff (N=147)	Innovative Behavior	Work Engagement	-1SD	0.0752	5.449	0.2613	0.5587
			Mean	0.0715	7.803	0.4171	0.7001
			+1SD	0.0954	7.410	0.518	0.895
Teaching staff (N=269)			-1SD	0.0441	15.455	0.595	0.769
			Mean	0.0468	13.439	0.5375	0.722
			+1SD	0.064	8.9542	0.450	0.704

To summarize, the last check of the hypotheses of the model in this thesis is displayed in Table 22.

<Table: 22> Summary of research hypothesis verification

Hypothesis	**Test result**
Organizational justice and Innovative behavior	
H1:Organizational justice has a positive impact on teachers' Innovative behavior in college and university..	Accepted
H1a:Distributive justice has a positive impact on teachers' Innovative behavior in college and university.	Accepted
H1b: Procedural Justice has a positive impact on teachers' Innovative behavior in college and university.	Accepted
H1c: Interpersonal justice has a positive impact on teachers' Innovative behavior in college and university.	Accepted
H1d: Informational justice has a positive impact on teachers' Innovative behavior in college and university.	Accepted
Ethical leadership and innovative Behavior	
H2: Ethical leadership has a positive impact on teachers ' innovative Behavior in college and university.	Accepted
Organizational justice and work Engagement	
H3: Organizational justice has a positive impact on teachers ' work Engagement in college and university.	Accepted

H3a: Distributive justice has a positive impact on teachers' work Engagement in college and university.	Accepted
H3b: Procedural justice has a positive impact on teachers' work Engagement in college and university.	Accepted
H3c: Interpersonal justice has a positive impact on teachers' work Engagement in college and university.	Accepted
H3d: Informational justice has a positive impact on teachers' work Engagement in college and university.	Accepted
work Engagement and Innovative behavior	
H4:Teachers' work engagement has a positive impact on teachers' Innovative behavior in college and university.	Accepted
H4a:Vigor has a positive impact on teachers' innovative behavior in college and university.	Accepted
H4b:Absorption has a positive impact on teachers' innovative Behavior in college and university.	Accepted
H4c: Dedication has a positive impact on teachers' innovative Behavior in college and university.	Accepted
H5:Teachers' work engagement partially mediate between organizational Justice and teachers' innovative behavior in college and university.	Accepted
The moderating effect of Ethical leadership on work Engagement and innovative behavior	
H6:Ethical leadership moderate between teachers' work Engagement and teachers' innovative behavior in college and university in college and university.	Rejected
H7:The moderating effect of ethical leadership is different between administrators staff and teaching staff in college and university in college and university.	Accepted

Ⅵ. Conclusions

Based on the previous research, this thesis has analyzed the direct influence between Organizational justice, ethical leadership and teachers innovative behavior. The mediating role of work engagement in variables. The moderating of ethical leadership in variables. Finally, this thesis proposed the main research conclusions,suggestion,theoretical contributions and practical enlightenment,as well as the shortage of the thesis and the direction of research in the future.

6.1 Research Conclusions

Based on the analysis results in Table 22, this thesis summarized the following important conclusions:

1. Organizational justice emphatically affected teachers' innovative behavior in colleges and universities.

2. Ethical leadership decidedly affected teachers' innovative behavior in colleges and universities.

3. The teachers' work engagement emphatically affected teachers' innovative behavior in colleges and universities .

4. Organizational justice emphatically affected teachers' work engagement in colleges and universities. The teachers' work engagement plays a partial mediating role between organizational justice and innovative behavior.

5. The conclusions of 1-4 are still valid for both the administrative staff and the teaching staff, but generally speaking, teaching staff has a stronger impact than the administrative staff.

6. For administrative staff, ethical leadership has a significant moderating effect on teachers' work engagement and teachers' innovative behavior. For teaching staff, ethical leadership has no moderating effect on teachers' work engagement and teachers' innovative behavior.

6.2 Theoretical contribution and practical enlightenment

1. Theoretical contribution

Firstly, the current researches on Organizational justice and ethical leadership, especially the topic of ethical leadership, are mostly focused on foreign countries. By contrast, China is still in the initial stage, and there are few empirical studies on ethical leadership by scholars, and the number of relevant literature available is also limited. Based on empirical evidence, this thesis explores and demonstrates the relationship between Organizational justice, ethical leadership and teachers innovative behavior, which to some extent enriches the domestic research about their relationship, and also hopes to provide some valuable reference for other scholars to explore related fields in the future.

Secondly, there are few studies on mediating variables and moderating variables. This thesis studies the mediating effect of work engagement on Organizational justice and innovative behavior, the moderating effect of ethical leadership on work engagement and innovative behavior. We make a comparative analysis of administrative staff and teaching staff in colleges and universities, and draws a series of valuable conclusions. It enriched the exploration of the variables of Organizational justice and ethical leadership.It provides a reference for the classification of different types of personnel in colleges and universities.

2. Practical enlightenment

The competition for talents in colleges and universities is becoming increasingly fierce. Innovation has become an important driving force for colleges and universities to obtain core competitiveness and seek development. Therefore, how to bring forth the new in the way of incentive, successfully stimulate teachers' enthusiasm for work, and harvest more innovative performance has become the urgent need of university administrators. Through empirical analysis, this thesis proves that carrying out Organizational justice and ethical leadership activities can effectively promote the improvement of teachers' innovative behavior, and work engagement plays a very important partially mediating role between them.

Based on the above conclusions, this thesis summarizes the practical enlightenment from the following aspects, hoping to provide some valuable suggestions for colleges and universities to promote the emergence and development of teachers' innovative behavior smoothly.

(1) Colleges and universities should attach importance to ethical leadership.

This thesis shows that ethical leadership has a positive impact on teachers' sense of Organizational justice and teachers' innovative behavior. Through positive interaction with teachers, ethical leadership can establish a harmonious relationship between superiors and subordinates, create an atmosphere full of positive energy in the association, and make teachers ready to step up and add to the association. And China is a country attaches great importance to ethical norms. Thus for colleges and universities, it is necessary to develop their level of ethical leadership. In the process of management, school administrators need to introduce the theory of ethical leadership, advocate more humane leadership style, the leader should also establish and improve the appraisal system, supervise the leader's management decision-making behavior, Prevent unethical behavior. With the development of the times, self-awareness of teachers has progressively started to improve. The administrators should pay more attention to teachers' own opinions and ideas in college and University. Commanding subordinates will not bring them too much positive influence.

(2) Improve the evaluation system, strengthen communication, and improve teacher' sense of Organizational justice

This thesis show that Organizational justice additionally positively affects teachers' innovative behavior, so the issue of fairness should be paid more attention in colleges and universities.

Colleges and universities administrators need to pay attention to the school evaluation system is a multidimensional concept, should constantly improve the performance evaluation system, to commend the performance of teachers. At the same time, the school's performance evaluation also needs to be transparent and open. After the performance evaluation, the results

of performance evaluation should be fully discussed with teachers to improve teachers' recognition of the evaluation results, so as to improve teachers' view of Organizational justice.

The administrators of colleges and universities must also timely understand the unfair problems that teachers think exist, adjust their leadership behavior in time, and communicate with teachers more. So as to improve teachers' trust in the organization and develop more practices helpful for the advancement of the organization.

(3) Colleges and universities should adjust leadership strategies according to different types of teachers.

The research results of this thesis show that teaching staff and administrative staff have different effects on teachers' innovative behavior. Therefore, different teachers need to receive different degrees of attention in the management of colleges and universities. Leaders should treat all teachers equally, but this does not mean that all management systems in an organization should remain rigid. For example, when university managers assign work tasks to teaching staff and administrative staff, they need to pay attention to their different needs and appeals and develop different management strategies.

6.3 Research limitations and future research direction

1. Research limitations

This thesis mainly discusses the relationship among Organizational justice, ethical leadership and teachers' innovative behavior in colleges and universities. We introduce work engagement as a mediating variable and ethical leadership as a moderating variable. This thesis uses questionnaire survey method to conduct empirical research. However, due to various reasons, this thesis still has limitations in the following two aspects:

(1) Limitations of data sample acquisition

The research objects in this thesis are mainly from Hebei Province, China, which affects the universality of the research results. Although different types of universities have been involved, it is still not comprehensive due to the limited time, energy and social network

resources of researchers. Given that the results of research will be affected by regional and cultural background. If possible, the conclusions of this thesis need to be further verified in different regions and environments. Meanwhile, although 416 valid questionnaires were collected in this thesis, they still failed to meet the standard of "sample/item >10".

(2) Limitations of research methods

The vast majority of the survey data in this thesis come from online questionnaires, which has strong flexibility, but also tends to cause data distortion and affect the validity of questionnaires. In addition, this thesis adopts the horizontal research method. The data used in the analysis are the cross-sectional information gathered at a particular moment. So the causal relationship between variables needs to be further determined by tracking or experiment. Using only these data, it is difficult for researchers to comprehensively investigate the causal relationship. The results of this thesis may not be consistent with the actual situation of colleges and universities.

2. Future research direction

This thesis mostly examines the impact way and system of Organizational justice and ethical leadership on teachers' innovative behavior. However, with regards to Chinese culture, innovative behavior is still a relatively new research variable, and there are still many problems in the relevant research system that deserve further discussion. Based on the research conclusions and referring to the research process, this thesis believes that relevant researches about innovative behavior in colleges and universities can be expanded in the future .

(1) Develop localized and targeted measurement scale of innovative behavior in colleges and universities

At present, the relatively mature measurement scales of innovative behavior are all from abroad Their applicability in the research of Chinese universities remains to be discussed. Therefore, the follow-up research can be based on the existing foreign achievements—flexibly embedded in the specific cultural background of China—to develop a set of measurement scale of innovative behavior in college and university. It is required close to China's national

conditions, to lay a foundation for more rigorous and targeted research in related fields.

(2) Enrich the research on the specific mechanism of innovative behavior, and provide a theoretical basis for different types of schools to implement more targeted innovative behavior activities

At present, most of the researches on innovative behavior are analyzed and summarized as a whole. However, these conclusions are relatively general and less targeted. When they are applied to different universities and different working environments, the effects are also different. Managers cannot really grasp the specific effects and paths of these conclusions. Therefore, the mechanism of innovative behavior in different work scenarios can be deeply studied in the future based on the current situation of innovative behavior of Chinese universities.To help university administrator improve the incentive level and reduce administrative costs.

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Appendix

The questionnaire of "the impact research of Organizational fairness, Ethical leadership to teachers' Work Engagement and Innovative behavior"

Part 1 Basic personal information

A1. Gender:
1. Male
2. Female

A2. Age
1. <25 2.26-35
3.36-45 4. 46-55
5. >55

A3. Your marital status
1. Married
2.unmarried
3.divorced

A4. The name of the colleges/ university where you teach is:
_____
A5. The educational level of your colleges/ university
1. "Double Tops "universities
2. Common colleges and universities.
3. Junior college
4. Higher vocational colleges
5. Independent colleges
6. Others

A6. Your education:
1. Doctor
2. Master
3. Bachelor
4. Juniorcollege

A7 You're working years at the university: (years)
1. < 2 2.3-5
3.6-9 4.10-15
5.16 -- 20 6.21 -- 25
7.26 -- 30 8.31 -- 35
9.> 35

A8. Your current position:
1. Teaching staff position
2. Administrative staff position

A9. Your current income level
1. 1000-2500 RMB
2. 2500-4000 RMB
3. 4000-7500 RMB
4. > 7,500 RMB

A10 the average number of hours you spend working each week : (hours)
1.<8 2.9-16 3.7-24 4. 25-32
5.33-40 6.41-48 7.49-56 8. >56

A11 what discipline you work in
1. Philosophy
2. Economics
3. Law
4. Pedagogy
5. Literature
6. History
7. Engineering
8. Agriculture
9. Medical
10. Military
11. Management
12. Art
13. Science

Part 2 Organizational Justice Scale

Please objectively judge the extent to which the following description is consistent with your actual situation. Please select the corresponding option from "totally disagree" to "totally agree" with the score of 1-5 points respectively.

All projects are scored in a positive way. The higher the score is, the higher the teacher's perception of fairness in the corresponding dimension of Organizational justice.

Items	Totally disagree	Partially disagree	General ly agree	Partially agree	Total agree
PJ: (Procedural Justice)					
The following items refer to the procedures used to arrive at your (outcome). To what extent:					
PJ1: Have you been able to express your views and feelings during those procedures?	①	②	③	④	⑤
PJ2: Have you had influence over the (outcome) arrived by those procedures?	①	②	③	④	⑤
PJ3: Have those procedures been applied consistently?	①	②	③	④	⑤
PJ4: Have those procedures been free of bias?	①	②	③	④	⑤
PJ5: Have those procedures been based on accurate information?	①	②	③	④	⑤
PJ6: Have you been able to appeal the (outcome) arrived at by those procedures?	①	②	③	④	⑤
PJ7: Have you been able to appeal the (outcome) arrived at by those procedures?	①	②	③	④	⑤

Items	Totally disagree	Partially disagree	General ly agree	Partially agree	Total agree
DJ：(Distributive Justice)					
The following items refer to your (outcome). To what extent:					
DJ1: Does your (outcome) reflect the effort you have put into your work?	①	②	③	④	⑤
DJ2: Is your (outcome) appropriate for the work you have completed?	①	②	③	④	⑤
DJ3: Does your (outcome) reflect what you have contributed to the organization?	①	②	③	④	⑤
DJ4: Is your (outcome) justified, given your performance?	①	②	③	④	⑤
IJ：(Interpersonal Justice)					
The following items refer to [the authority figure who enacted the procedure. To what extent:					
IJ1: Has (he/she) treated you in a polite manner?	①	②	③	④	⑤
IJ2: Has (he/she) treated you with dignity?	①	②	③	④	⑤
IJ3: Has (he/she) treated you with respect?	①	②	③	④	⑤
IJ4: Has (he/she) refrained from improper remarks or comments?	①	②	③	④	⑤
FJ：(Informational Justice)					
The following items refer to [the authority figure who enacted the procedure， To what extent:					
FJ1: Has (he/she) been candid in (his/her) communications with you?	①	②	③	④	⑤
FJ2: Has (he/she) explained the procedures thoroughly? Were (his/her) explanations regarding the procedures reasonable?	①	②	③	④	⑤
FJ3: Were (his/her) explanations regarding the procedures reasonable?	①	②	③	④	⑤
FJ4: Has (he/she) communicated details in a timely manner?	①	②	③	④	⑤
FJ5: Has (he/she) seemed to tailor (his/her) communications to individuals' specific needs?	①	②	③	④	⑤

Part 3 Ethical Leadership Scale

Please objectively judge the extent to which the following description is consistent with your actual situation. Please select the corresponding option from "totally disagree" to "totally agree" with the score of 1-5 points respectively.

All projects are scored in a positive way. The higher the score is, the higher the Ethical Leadership in the corresponding dimension of Organizational justice.

Items	Totally disagree	Partially disagree	General ly agree	Partially agree	Total agree
ML1. Listens to what employees have to say.	①	②	③	④	⑤
ML2. Disciplines employees who violate ethical standards.	①	②	③	④	⑤
ML3. Conducts his/her personal life in an ethical manner.	①	②	③	④	⑤
ML4. Has the best interests of employees in mind.	①	②	③	④	⑤
ML5.Makes fair and balanced decisions.	①	②	③	④	⑤
ML6. Can be trusted.	①	②	③	④	⑤
ML7. Discusses business ethics or values with employees.	①	②	③	④	⑤
ML8. Sets an example of how to do things the right way in terms of ethics.	①	②	③	④	⑤
ML9. Defined success not just by results but also the way that they are obtained.	①	②	③	④	⑤
ML10. When making decisions, asks “what is the right thing to do?”	①	②	③	④	⑤

Part 4 Work Engagement Scale

Please objectively judge the extent to which the following description is consistent with your actual situation. Please select the corresponding option from "totally disagree" to "totally agree" with the score of 1-5 points respectively.

All projects are scored in a positive way.

Items	Totally disagree	Partially disagree	Generally agree	Partially agree	Total agree
VI1.At my work, I feel bursting with energy.	①	②	③	④	⑤
DE1.I find the work that I do full of meaning and purpose.	①	②	③	④	⑤
AB1.Time flies when I am working.	①	②	③	④	⑤
VI2.At my job, I feel strong and vigorous.	①	②	③	④	⑤
DE2.I am enthusiastic about my job.	①	②	③	④	⑤
AB2.When I am working, I forget everything else around me.	①	②	③	④	⑤
DE3.My job inspires me.	①	②	③	④	⑤
VI3.When I get up in the morning, I feel like going to work.	①	②	③	④	⑤
AB3.I feel happy when I am working intensely.	①	②	③	④	⑤
DE4.I am proud of the work that I do.	①	②	③	④	⑤
AB4. I am immersed in my work.	①	②	③	④	⑤
VI4.I can continue working for very long periods at a time.	①	②	③	④	⑤
DE5. To me, my job is challenging.	①	②	③	④	⑤
AB6.It is difficult to detach myself from my job.	①	②	③	④	⑤
VI6.At my work, I always persevere, even when things do not go well.	①	②	③	④	⑤

(Note: VI=Vigor . DE=Dedication. AB=Absorption .)

Part 5 Innovative Behavior Scale

Please objectively judge the extent to which the following description is consistent with your actual situation. Please select the corresponding option from "totally disagree" to "totally agree" with the score of 1-5 points respectively. All projects are scored in a positive way.

Items	Totally disagree	Partially disagree	Generally agree	Partially agree	Total agree
OE（opportunity exploration）					
OE1. Keeping oneself informed about the organization's/school's structures and processes.	①	②	③	④	⑤
OE2. Exchanging thoughts on recent developments with one's clients/ colleagues.	①	②	③	④	⑤
OE3. Keeping oneself informed about the latest developments within the company/at one's school.	①	②	③	④	⑤
OE4. Keeping oneself informed about new concepts/insights within one's professional field.	①	②	③	④	⑤
OE5. Keeping oneself informed about new developments in other organisations outside the company/at other schools.	①	②	③	④	⑤
IG（ idea generation）					
IG1. I will timely discover and master the latest theories, technologies and methods.	①	②	③	④	⑤
IG2. I often have innovative ideas and ideas and come up with new hypotheses or methods.	①	②	③	④	⑤
IG3. I will look at problems from different angles to gain deeper insights.	①	②	③	④	⑤
IP（idea promotion）					
IP1. Addressing key persons who provide necessary permissions and resource allocation.	①	②	③	④	⑤
IP2. Promoting new ideas to colleagues in order to gain their active support.	①	②	③	④	⑤
IP3. Promoting new ideas to the supervisor in order to gain her/ his active support.	①	②	③	④	⑤
IR（idea realization）	①	②	③	④	⑤
IR1.Promoting the application of the new solution within one's work context.	①	②	③	④	⑤
IR2. I will make appropriate plans and steps to realize my new ideas in scientific research and teaching.	①	②	③	④	⑤
IR3. If conditions do not allow, I will take risks to implement new ideas.	①	②	③	④	⑤
RE（reflection）					
RE1.Assessing the progress while putting ideas into practice.	①	②	③	④	⑤
RE2. I will constantly correct the problems in the application of new technologies, methods and theories.	①	②	③	④	⑤
RE3. I will name new ideas and knowledge.	①	②	③	④	⑤
RE4. I will summarize success criteria for specifying implementation ideas.	①	②	③	④	⑤