

A Study of the Relationship between External Incentive and Teachers' Initiative Innovation Behaviors in Scientific Research of Local Universities in Western China

Haitao Lu¹, Wenchuan Wu²

^{1,2} International College, Krirk University, Thanon Ram Intra, Khwaeng Anusawari, Khet Bang Khen, Krung Thep, Maha Nakhon10220, Thailand
E-mail :905543168@qq.com

Abstract

The innovation power of organization comes from individual innovation behavior. Whether external incentive measures can effectively stimulate individual innovation behavior, researchers have not come to a consistent conclusion. Local colleges and universities in Western China have obvious location disadvantages and limited funds. It is urgent to clearly understand the relationship between external incentives and teachers' active innovation in scientific research in decision-making. Based on this, this study takes the teachers of six local colleges and universities in S Province of Western China as the research object, adopts the convenient sampling method, issues questionnaires to collect data, and uses SPSS 24.0 as the statistical analysis tool. The research results show that external motivation has a significant explanatory power (Statistical interpretation) on teachers' initiative innovation behaviors, autonomous motivation completely mediates external motivation and active innovation behaviors, and the positive explanation power of active motivations of high-medium thinking group is higher than that of low-medium Thinking group. Based on the research results, this paper puts forward practical suggestions for local colleges and universities to formulate incentive system.

Keywords: *initiative innovation behaviors, golden mean, external incentive measures*

Introduction

With the advent of a new round of scientific and technological revolution and industrial change, innovative development has become an inevitable way for all kinds of organizations, including colleges and universities, to survive and grow their performance (Caniëls & Veld, 2019). The innovation power of organization comes from the innovation behavior of individual (Bosnehles, renkema, & Janssen, 2017). Many research results have been accumulated on individual innovation behavior. Some studies have pointed out that Chinese individuals are deeply influenced by collectivism culture, and their behavior often succumbs to authoritative instructions. When "innovation" is defined as a major strategic decision of national development, there will be individual innovation behavior of policy implementation type (Liao Jianqiao, Zhao Jun, & Zhang Yongjun, 2010). This kind of innovation behavior is a passive innovation behavior. Zhao Bin, Luan Hong, Li Xinjian, Bi Xiaoqing and Wei Jinyu (2014) proposed that passive innovation behavior and active innovation behavior coexist in China's organizational management practice to different degrees, and proposed the

concept of "active innovation behavior". As one of the important institutions for the transformation of knowledge resources into innovative intellectual resources, the active innovation behavior of university teachers in the field of scientific research is the basis and key to realize this transformation (Xing Nannan & Tian Meng, 2018). It is an important goal of university scientific research management to stimulate University Teachers' active innovation behavior in the field of scientific research to the maximum extent.

The unbalanced development of China's higher education is more prominent in local colleges and universities, especially in non central cities in Northwest China. The regional disadvantages of such colleges and universities result in the shortage of high-level talents and the shortage of school running funds. The limited funds make policy makers need to consider more carefully when implementing incentive measures. There are different conclusions about whether external incentive measures can stimulate individual initiative innovation behavior. Some researchers believe that salary, as a means of external incentive, reflects the management concept of distribution according to labor or contribution, and has an important incentive effect on individual innovation motivation and behavior (Fischer, Malycha & Schafmann, 2019; Gong, Huang, & Farh, 2009); Some researchers also believe that the application of performance-based pay will make employees' behavior tend to be conservative in the process of innovation, which is not conducive to the generation of innovation behavior (Begum & Hamzah, 2017; Dweck & Leggett, 1988) . The applicability of these research results for colleges and universities is not clear, so it is necessary to carry out targeted research from the perspective of the relationship between external incentives and individual behavior, so as to provide reference for decision makers of local colleges and universities.

This process from external environment influences to individual behavior stimulation has always been the focus of many scholars, and has produced multiple theories and models. Among them, the Self-Determination Theory (SDT) theory has been used in recent years. Widely used (Cho & Yang, 2018; Vansteenkiste & Sheldon, 2011). This theory analyzes the process of external motivating factors and external motivating factors gradually becoming individual motives, analyzes the process of external motivating factors affecting individual behaviors, and proposes the concept of autonomous motivation (Deci & Ryan, 2000). Later studies by scholars have shown that individuals with autonomous motivations are willing to take proactive behaviors to initiate work changes because of their spontaneous love and identification of work (Nasir et al., 2019; Huang & Tan, 2018; Zhang & Wu, 2016). Teachers engaged in the work of imparting knowledge and scientific research are highly individualized. The external incentive measures of colleges and universities are oriented toward organizational goals. Can teachers' independent motivations turn the external motivational guidance into personalized individual behaviors? Active pursuit, that is, whether autonomous motivation plays a positive role in the relationship between external incentives and active innovation behavior, this topic is very interesting and worth exploring.

Deci and Ryan (2000) pointed out that human motivation is not passively controlled by internal and external stimuli. Individuals will actively regulate and control. Individual personality and thinking style will affect the results of regulation. The golden mean thinking is a unique way of thinking formed by the internalization of the Confucian culture. It advocates the use of "persistence" and "consistent" methods to achieve a balance between the individual and the environment. This thinking mode has been integrated into the Chinese national character and social psychology Among them, it affects Chinese people's thinking and behavior attitude (Du & Yao, 2015; Li & Chen, 2014; Jenkins, Yang, Goh, Hong, & Park, 2010). Some studies have pointed out that the higher the employees' level of mediocre thinking, the more likely they are to innovate (Pian, 2019; Wei, Sun & Liu, 2017); but some studies have suggested that mediocre thinking emphasizes compromise and tolerance, which is not conducive for employees to strive for their opinions, and that will restrict the development and implementation of employees' innovative behavior (Yang, Yang & Sun, 2012; Yao, Yang, Dong & Wang, 2010). As a knowledge group that combines both traditional culture and contemporary science and technology, teachers' moderate thinking will influence the external motivation into the teacher's autonomous motivation, and the degree of

influence that the autonomous motivation stimulates the teacher's initiative innovation behavior. The research on this topic It will be a useful exploration for the study of mean thinking and autonomous motivation.

In response to different questions raised by different researchers above, this research believes that according to Friedman (2009), the study should focus on digging which view point is correct in a particular situation, rather than trying to prove which conclusion is absolute truth. Therefore, this study attempts to explore from the perspective of the differences between Chinese and Western cultures, and explore whether the external incentive measures with organizational goals oriented under the moderating effect of China's unique golden mean can be transformed into autonomous motivations, which can effectively stimulate the initiative of Chinese college teachers. Creative behavior? Does mean thinking play a positive, negative or ineffective role in forming teachers' initiative innovation behavior? If moderate thinking has a moderating effect, to what extent? What are the results of theoretical research for university management practice?

Literature discussion

External incentives and active innovation

Kleysen and Street (2001) research pointed out that individual innovation behavior is all behaviors that individuals bring benefits to the organization as a whole or in part. The innovative behavior of employees is crucial to the innovation ability of the organization. The individual is the cornerstone of every innovation of the organization (Bos-Nehles, Renkema, & Janssen, 2017), but in China's management context, organizations often show high power distance Affected by the culture of collectivism, individual behaviors often succumb to organizational systems and authoritative directives. When innovation is determined as a major strategic decision for national development, policy-promoting innovation behaviors will occur (Liao, Zhao & Zhang, 2010). As a result, the coexistence of active innovation behaviors and passive innovation behaviors in different degrees is in China's organizational management practice. (Zhao & Han, 2016). Parker, Williams and Turner (2006) pointed out that active behavior is the behavior of employees focusing on the future, self-directing, taking initiative, and bringing positive change to the organization. Combining the Chinese management practice situation, the results of individual active behavior research, and the characteristics of innovation work, Zhao et al. (2014) proposed the concept of active innovation behavior, pointing out that individuals need a kind of heart, prepared, courageous to face and solve A series of new problems of voluntary innovation can bring high-quality innovation performance to individuals and create sustainable innovation capabilities for the organization. At the same time, three core elements of active innovation behavior are proposed: spontaneity, early preparation and overcoming obstacles.

Kurt Lewin's field dynamics theory states that individual behavior is a function of individual internal motivation and environmental stimuli, and incentives are a type of management environmental stimulus (Qiu & Hu, 2015). The word motivation comes from the Latin word "movere", which means to take action. Davis (1972) proposed that incentives are a process to achieve organizational goals, and to use the stimulus to produce relevant behaviors in response to the needs of individual organizations. Qiu and Hu (2015) pointed out that comprehensive motivation theory divides motivation into Intrinsic Motivation and External Motivation. External incentives come from outside the job itself, and are the stimulus for mobilizing individuals' positive behaviors outside of the tasks such as material remuneration, living welfare or promotion rewards provided by the organization to employees. To stimulate the individual's work consciousness in terms of interest in work, sense of work achievement, realization of self-worth, and other work tasks. Yu (2016) took college teachers as research objects, studied the incentive system of colleges and universities in stimulating teachers' work enthusiasm and improving teachers' work performance, and put forward two dimensions of college teachers' external and internal motivation. This research adopts the research results to pay Incentives, assessments, and promotion incentives are viewed as external incentive dimensions.

Eisenberger (1992) proposed the learned industriousness theory, which believes that the principle of external incentives to promote individual innovation is: individuals will feel bored at the same time that they work hard, and external incentives such as reward It compensates for this feeling and encourages the individual to generalize this acquired experience to new behaviors. A number of studies support this theory. The study believes that external incentives such as rewards can both promote creativity and hinder creativity, depending on the definition of incentives and understanding of creativity and innovation, as well as individual differences and external environmental factors. In terms of function, motivation can influence creativity and innovation through motivation or cognitive factors and their combined effects (Fischer, Malycha & Schafmann, 2019; Hwang & Jung, 2018; Xu, Zhang, Liu & Li, 2012).

Based on the above theory and research results, this study proposes the following hypotheses: H1: External incentives affect active innovation.

The mediation mechanism of autonomous motivation

The concept of "autonomous motivation" is derived from the Self-Determination Theory (SDT) theory, which was constructed by Deci and Ryan (2000), from the external motivating factors of individual behavior and its internalization into individual motivation Process, put forward the process and mechanism of individual behavior generation. The theory considers that motivation is a continuum with two ends: external regulation and internal motivation. There are five types of motivation regulation on the continuum: external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic motivation are evenly distributed, and the degree of autonomy varies from weak to strong in the order of arrangement. External regulation refers to individual behaviors derived from external rewards or punishments; introverted regulation refers to individual behaviors derived from self-esteem or guilt; identity regulation refers to individual behaviors derived from recognition of external values; integrated regulation refers to individual behaviors derived from complete internal Externalized values, which have been internalized as self-beliefs; internal motivations refer to individual values that are derived entirely from the internal values of the individual. In the development of the theory, the combination of extrinsic regulation and introverted regulation is called controlled motivation, and identity regulation, integrated regulation, and internal motivation are called autonomous motivations (Cho & Yang, 2018; Vansteenkiste & Sheldon, 2011; Ratelle, Guay, Vallerand, Larose, & Senécal, 2007).

Many studies have pointed out that employees with self-motivated motivations are willing to take more proactive behaviors and bring about more changes because of their love and enjoyment of the work itself; employees with controlled motivations hope to get higher Material income and more social recognition may also lead to spontaneous, future-oriented and change-oriented initiatives (Nasir et al., 2019; Huang & Tan, 2018; Zhang & Wu, 2016; Zhang, Liu, Shi & Fu, 2011; Vansteenkiste, Zhou, Lens, & Soenens, 2005).

In the research on the innovative behavior of teachers, a number of studies on the relationship between teacher's autonomy-control motivation and creative work behavior have found that in the role of effectively promoting teachers' innovative behavior, autonomous motivation is better than control Motivation (Cho & Yang, 2018; Gorozidis & Papaioannou, 2014; Schellenbach-Zell & Gräsel, 2010; Li, Gao, Wang & You, 2016).

The composition theory (or composition theory) proposed by Amabile, Conti, Coon, Lazenby, and Herron (1996) believes that the work environment is an important external factor affecting the individual's innovative work behavior. The work environment affects the individual by acting on three important psychological components of the individual. Impact on innovative work behavior. These three psychological components are mainly domain relevant skills, creativity relevant skills, and task motivation. The role of work motivation proposed by the composition theory in the relationship between external environment and innovative work behavior has been verified and supported by many empirical studies (Adil & Ab, 2019; Wang & Liu, 2017; Hirst et al., 2009; Zhou & Shalley, 2011). In the study of teacher innovation behavior, many studies have pointed out that teachers' motivation for autonomy plays a full or partial intermediary role in

performance assessment, organizational innovation atmosphere, leadership types and teacher innovation behavior (Baum & Baumann, 2018; Wang Zhongjun, Liu Lidan, 2017 Singh & Singh, 2016; Li Mingjun and others, 2016). Based on the above theory and research results, this study proposes the following hypotheses:

H2: External motivation affects teachers' motivation for autonomy.

H3: Autonomous motivation affects teachers' initiative innovation behavior.

H4: Autonomous motivation mediates external incentives and active innovation behavior.

The Mediator Role of Golden Mean Thinking

The word "the Golden Mean" first appeared in Confucius' Analects of Yonge (Xu, 1998). Zhao (2000) studied the role of golden mean thinking in the cognitive function of Chinese people from the perspective of golden mean thinking, which is to adjust the specific cognitive process to help a person make a decision and complete an action. aims. Yang (2008, 2009), after integrating the many characteristics of the Golden Mean, proposed that Golden Mean is the abbreviation of "Zhong-Yong practical thinking style", which contains a number of sub-concepts: Yin-Yang transformation thinking, global thinking, long Thinking, pinch thinking, etc.; The golden mean practical thinking is a set of "metacognitive" "practical thinking system", which is an action criterion for individuals to select, implement, and correct specific action plans. Du and Yao (2015) proposed that the golden mean is a value orientation in the interaction between the individual and the outside world, and it advocates adopting the methods of "performing" and "consistent" to achieve the balance between the individual and the environment. Wu and Lin (2005) pointed out that one of the expedient performance criteria of individuals in different modes of thinking in the golden mean thinking system is "power", which distinguishes environmental information from the inherent requirements of individuals. The implicit thinking trait is named "multi-party "Thinking"; the second is "harmony", which is a criterion for individuals to integrate external environmental information and internal individual thoughts in a non-biased and harmonious way of action. The underlying thinking characteristics are "integrity" and "harmony" ".

At present, the golden mean thinking has become a kind of social psychology, which exists widely in the nations and social groups under the influence of Confucian culture, especially in China. The cultural value, thinking habits, and behavioral orientation of the individual subconscious are more or less hidden. Traits with golden mean (Yang & Zhang, 2018; Yuan, Zhang & Tu, 2018; Du & Yao, 2015). The neuroimaging evidence also shows that Easterners who are more influenced by the Confucian mean culture are more concerned with the overall process than Westerners, are more sensitive to scene objects, and can adapt to processes that do not fit their attitudes and contextual relationships (Jenkins et al., 2010). This study is based on the theory that golden mean thinking as an individual cognitive framework is used to select, implement, and correct guidelines and action guidelines for specific action plans, and introduces golden mean thinking as a moderating variable.

Du, Ran and Cao (2014) studied the mechanism of the effect of the mean value orientation on the employee's change behavior. The empirical research results show that the mean value orientation has a positive effect on the employee's change behavior. Sun (2018) research found that the depth and width of employees' thinking ability, the ability to integrate different perspectives, and the harmony of thinking have a significant positive impact on innovative behavior. Pian(2019) research pointed out that individuals with a high level of mediocrity will want to achieve a harmonious and balanced state with the external environment (social development and progress require reform and innovation, and innovation is the need for corporate survival). Therefore, the higher the level of mediocrity of employees, the more likely it is to innovate. The middle-to-higher tends to pay attention to maintaining "persistence" in various changing environments, so that the influence of the environment is amplified, and the organization's innovation requirements and expectations of employees will be very strong in the eyes of individuals, which will in turn lead to innovative behavior. The impartiality, non-advancement, and extremeness advocated by Zhong-Yong are conducive to

the development of employees who neither follow the rules of the old nor the extreme ways of thinking, do not blindly seek new and different, and create innovative results that are really beneficial to the organization.

Based on the above theory and research results, this study proposes the following hypotheses:

H5: Mean thinking regulates the relationship between external incentives and autonomous motivation.

H6: The Golden Mean regulates the relationship between autonomous motivation and active innovation behavior.

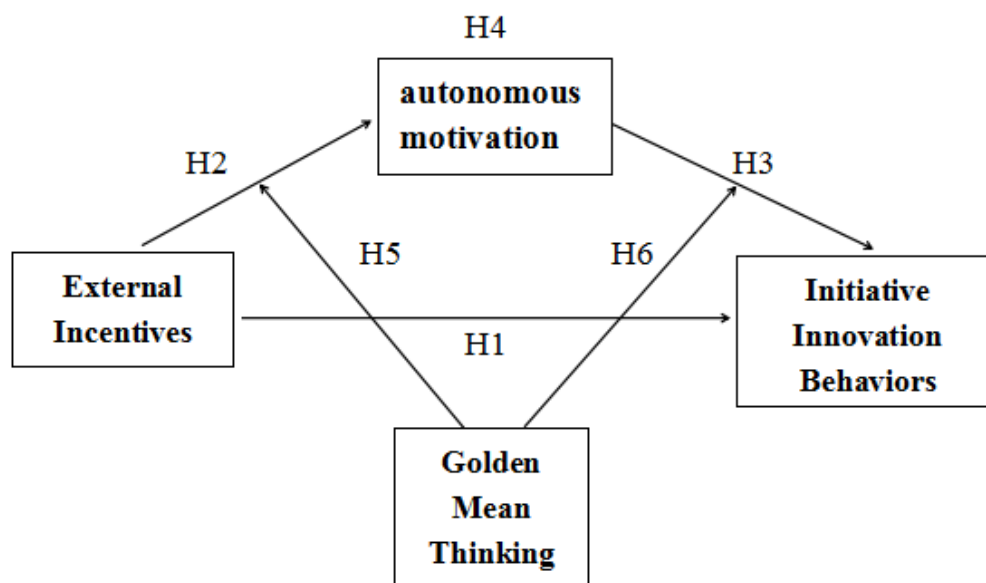


Figure 1 Research architecture diagram

Research Method

This study adopts a convenient sampling method. It takes the teachers of undergraduate universities in non-central cities of S province in northwestern China as the research object, and uses a scale developed by scholars who have been published in academic journals as an empirical data measurement tool. The SPSS 24.0 software performs basic data processing, performs reliability analysis on the scale, uses the confirmatory factor analysis method to test the validity of the scale construction, and uses regression and hierarchical regression analysis to verify the validity of the research model's explanatory power. Finally, the literature method is used to discuss the theoretical and practical results of the research.

Research Sample

In this study, teachers from undergraduate universities in non-central cities of S province in northwestern China were taken as the research object. Questionnaires were distributed using a convenient sampling method. A total of 188 questionnaires were distributed and 164 were recovered (recovery rate 87.2%). After excluding invalid questionnaires, the valid questionnaires were 154. Basic characteristics of effective survey samples: 91 males, accounting for 59.1%; 63 females, accounting for 40.9%. There are 62 full-time teachers, accounting for 40.3%; 51 shouldered staff, accounting for 33.1%; 41 full-time administrative staff, accounting for 26.2%. There are 93 master degree holders, accounting for 60.4%; 61 doctoral degree holders, accounting for 39.6%. There are 20 teaching assistants, accounting for 13%; 71 lecturers, accounting for 46.1%; 30 associate professors, accounting for 19.5%; 33 professors, accounting for 21.4%. 20 people under 3 years of education, accounting for 13%; 50 people in 4-10 years, accounting for 32.5%; 51 people in 11-20 years, accounting for 33.1%; 22 people in 21-30 years, accounting for 14.3%; 11 people over 30 years, 7.1%.

Variable Measurement Tool

The external incentive measurement adopts the University Teacher External Incentive Scale developed by Yu Huajun (2016), and is appropriately revised in accordance with the specific context of this study. It consists of two dimensions: salary incentive, assessment and promotion incentive. The salary incentive measurement items include "the amount of income (quantity) will affect my work enthusiasm", etc. The evaluation and promotion incentive measurement items include "I am willing to work hard to complete various evaluation indicators".

Active innovation behavior measurement adopts the active innovation behavior scale of scientific and technological personnel compiled by Zhao Bin et al. (2014), which is composed of three dimensions: spontaneity, preliminary preparation, and crossing obstacles. It has been revised in accordance with the specific situation of the research object, a total of 9 questions. Spontaneous measurement items include "keep discovering problems that need improvement in work", etc. Early preparation measurement items include "good at listening to suggestions from others in the process of innovation", etc. Measurement items that overcome obstacles include "working hard to overcome problems encountered in the process of innovation" Difficulties. "

The measurement of autonomic motivation is based on the items on the measurement of autonomy motivation in the "Work Motivation Scale" (MAWS) compiled by Gagné et al. (2010). There are 6 dimensions in two dimensions. The identification adjustment measurement items include "I work because this job is in line with my career plan", and the internal motivation measurement items include "I work because I like this job very much" and so on.

The moderation of practical thinking was measured by Du Jing et al. (2014). Measurement items include "Getting along with colleagues, it is not enough to be reasonable, but also reasonable", "There is always a limit to anything, it is not good to overdo it and fail to reach it".

The above four scales are scored using Likert's five-point method. 1 means "very disagree" and 5 means "very agree".

Data Analysis

Based on the collected valid questionnaire data, the data analysis software was used to perform reliability analysis, correlation analysis, four-step regression analysis (mediating effect), hierarchical regression analysis (adjusting effect), and simple slope test. The specific results are as follows:

Reliability and correlation analysis

This study conducted a reliability analysis on a total of 26 questions in the questionnaire. The analysis results showed that the Cronbach's alpha internal consistency coefficient was .88, which had acceptable reliability. The reliability test results of each component table are as follows:

Reliability analysis was performed on a total of 8 questions on the External Motivation Scale for University Teachers. The analysis results showed that its internal consistency coefficient of Cronbach's alpha was .77, which had acceptable reliability; a total of 9 on the Active Innovation Behavior Scale of Scientific and Technological Staff The reliability analysis was performed on the questions. The analysis results showed that the internal consistency coefficient of Cronbach's alpha was .91, which had acceptable reliability. This study conducted a reliability analysis on a total of 8 questions in the Work Motivation Scale. The analysis results showed that its Cronbach's alpha The internal consistency coefficient is .88, with acceptable reliability.

Reliability analysis was performed on a total of 6 questions on the Mean Value Orientation Measurement Scale. The analysis results showed that the internal consistency coefficient of Cronbach's alpha was 0.52. When examining the correlation between the question and the total score, it was found that the third and total score were too low ($r = .24$),

the 4th correlation with the total score is too low ($r = .08$), and the 5th correlation with the total score is too low ($r = .14$); therefore, delete these three questions and perform the reliability analysis again. The internal consistency coefficient of Cronbach’s alpha for the remaining 3 questions after deletion is .78, with acceptable reliability.

Table 1 Table of reliability and validity analysis results

Variable	Item	Factor load	Cronbach’s alpha	KMO	Cumulative explained variance(%)
Initiative Innovation Behaviors	CX1	0.72	0.91	0.75	72.19
	CX2	0.62			
	CX3	0.87			
	CX4	0.79			
	CX5	0.57			
	CX6	0.62			
	CX7	0.84			
	CX8	0.90			
	CX9	0.79			
External Incentives	JL1	0.97	0.77	0.6	62.05
	JL2	0.65			
	JL3	0.64			
	JL4	0.57			
	JL5	0.49			
	JL6	0.93			
	JL7	0.91			
	JL8	0.85			
autonomous motivation	ZZ1	0.85	0.88	0.72	57.95
	ZZ2	0.78			
	ZZ3	0.78			
	ZZ4	0.75			
	ZZ5	0.72			
	ZZ6	0.68			
Golden Mean Thinking	ZH1	0.80	0.78	0.7	57.28
	ZH2	0.75			
	ZH3	0.73			

Table 1 shows that the KMO values of the variables are 0.75, 0.6, 0.72, 0.7, all of which are greater than 0.5, and the percentages of the cumulative explanatory variance also meet the criteria for determination (Dzubian & Shirkey, 1974). This indicates that the questionnaire conforms to the inherent logical relationship of the data, and the validity of the questionnaire structure is good, and the next step of correlation analysis can be performed.

Table 2 Correlation matrix between external incentives and active innovation

behavior (N = 154)

	1	2	3
1. External Incentives	-		
2. Autonomous Motivation	.28**	-	
3. Golden Mean Thinking	-.32	.29**	-
4. Initiative Innovation Behaviors	.19*	.73**	.21**

*p<.05 ** p <. 01 *** p<.001

In this study, Pearson correlation analysis was used to test the correlation between the variables. The analysis results are shown in Table 2. It was found that: external motivation [r (152) = .19, p = .01], autonomous motivation [r (152) = .73, p <.001], and moderation thinking [r (152) = .21, p <.01] has a significant positive correlation with active innovation. Autonomous motivation [r (152) = .29, p <.001] has a significant positive correlation with mean thinking. External incentives [r (152) = .28, p <.001] are significantly positively related to autonomic motivation.

At the same time, the data in Table 2 also reflects that the external incentives [r (152) =-.32, p = .67] and the mean thinking have no significant positive correlation, so it is assumed that H5 is not true.

Regression analysis validates research hypotheses

This study used regression analysis to test the media-ting effect of autonomous motivation on external incentives and active innovation behavior. The results are shown in Table 3. The results show that external incentives have a significant explanatory power for autonomous motivation ($\beta = .28, p <.001$), and research assumes that H2 holds; external incentives have a significant explanatory power for active innovation behavior ($\beta = .20, p <.01$), The research hypothesis H1 is established; the autonomous motivation has a significant explanatory power to the initiative innovation behavior ($\beta = .74, p <.001$), the research hypothesis H3 is established; also consider the external incentives and the autonomy motivation's explanatory power to the active innovation behavior At this time, the explanatory power of external motivation is not significant ($\beta = -.00, p = .94$), while the autonomic motivation is still significant ($\beta = .74, p <.001$). According to Baron and Kenny's (1986) review of the judgment conditions, the mediation effect of this study holds, and the study assumes that H4 holds.

The analysis results show that external incentives have a significant explanatory power on active innovation behaviors (p <.01), but when analyzing the relationship between external incentives and autonomous motivations on active innovation behaviors, the explanatory power of external incentives on active innovation behaviors declines. The regression coefficient becomes insignificant (p = .94). This shows that when the motivation of autonomy is introduced into the relationship between external incentives and active innovation behaviors, the explanatory power of external incentives to active innovation behaviors has dropped to a level not considered statistically significant. In other words, in the relationship between external incentives and autonomous motivations to active innovation behavior, autonomous motivations have significant explanatory power (p <.001). According to the mediation determination theory proposed by Baron and Kenny (1986), autonomous motivation has a complete mediation effect, that is, autonomous motivation completely mediates external incentives and active innovation.

Table 3 Regression Analysis of External Incentives → Autonomous Motivation →

Active Innovation Behavior

	autonomous motivation	Initiative Innovation Behaviors		
	Model 1	Model 2	Model 3	Model 4
External Incentives	.28***	.20**		-0.00
autonomous motivation			.74***	.74***
<i>R</i> ²	.07	.04	.55	.55
<i>Adj R</i> ²	.07	.03	.54	.54
<i>F</i>	13.02***	6.67**	185.95***	92.36***
Degrees of freedom	(1,152)	(1,152)	(1,152)	(1,152)

The values in the table are standardized regression coefficients (β) * p <.05 ** p <.01 *** p <.001

This study uses hierarchical regression to test the effects of autonomous motivation and mean thinking on active innovation behavior. The analysis results are shown in Table 4. The analysis results show that the main effect of autonomic motivation and mean thinking can explain 55% of the variation of active innovation behavior, *F* (2,151) = 92.39, *p* <.001, and after controlling the main effect, autonomy motivation and mean thinking interact The effect can increase the active innovation behavior variation by 1.3%, *F* (1,150) = 4.44, *p* <.05.

The data show that the research assumes that H6 holds.

Table 4 Analysis of the interaction between autonomous motivation and mean thinking on active innovation

	Initiative Innovation Behaviors	
	Δ <i>R</i> ²	β
<i>Step 1</i>	.55***	
autonomous motivation		.73***
Golden Mean Thinking		.01
<i>Step 2</i>	.01*	
autonomous motivation		.66***
Golden Mean Thinking		.07
autonomous motivation Golden Mean Thinking Interaction		-.14*
Total <i>R</i> ²	.56*	
<i>N</i>	154	

* *p* <.05 ** *p* <.01 *** *p* <.001

The research data show that, as far as the main effect is concerned, autonomous motivation has a significant explanatory power to active innovation behavior (β = .66, *p* <.001), showing that the higher the autonomous motivation, the higher the active innovation behavior. The interaction of autonomous motivation and mean thinking has a significant explanatory power on active innovation behavior (β = -.14, *p* <.05).

Further draw the interaction diagram, as shown in Figure 2.

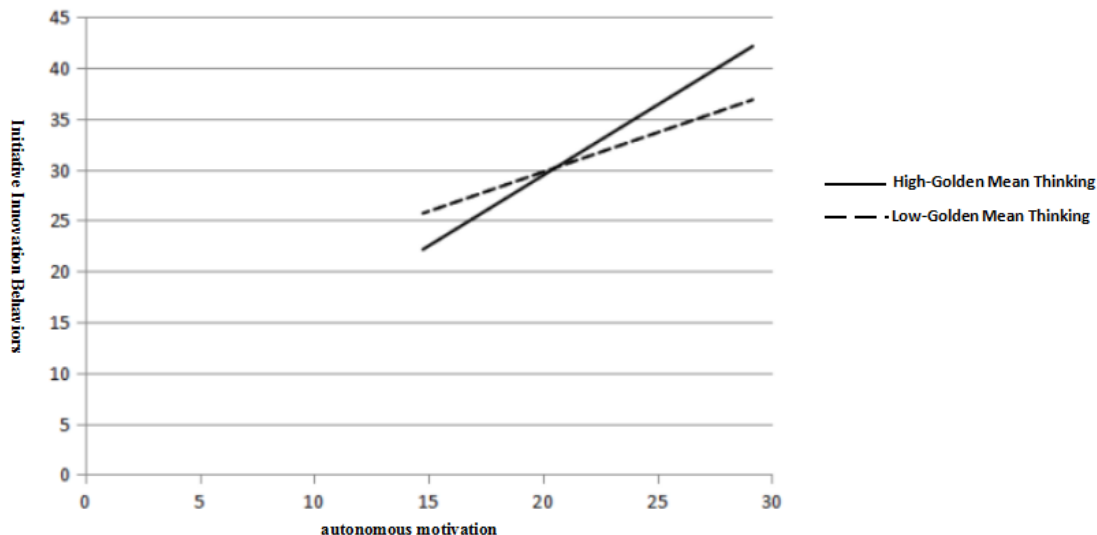


Figure 2 Interaction diagram

The simple slope test in Figure 2 shows that: for high-medium thinkers, autonomous motivation has a significant explanatory power for active innovation ($b = 1.38, p < .001$); for low-medium thinking, autonomy The explanatory power of sexual motivation to active innovation behavior was significantly reduced ($b = 0.77, p < .01$); it can be seen from the regression coefficients that in the high-medium thinking group, the positive explanatory power of active motivation in active innovation behavior was higher than in the low-medium thinking group .

Conclusion and Discussion

Conclusion

Based on the above theoretical and statistical analysis results, the sample of this study is as follows:

The relationship between external motivation and teachers' initiative innovation behavior is positively correlated, that is, external motivation will positively promote teachers' initiative innovation behavior.

There is a positive correlation between external motivation and teacher's autonomy motivation, that is, external motivation will positively promote teacher autonomy motivation.

The relationship between autonomous motivation and teachers' initiative innovation behavior is positively correlated, that is, autonomous motivation is positively promoting teachers' initiative innovation behavior.

Autonomous motivation intermediary external motivation promotes teachers' initiative innovation behavior, which has a complete mediating effect, that is, autonomy promotion as an intermediary variable to explore external motivation and teacher's initiative innovation behavior, there is no significant difference between external motivation and teacher's initiative innovation behavior The causal relationship, and the autonomy and motivation of teachers, have a significant causal relationship.

The golden mean thinking has no significant regulating effect in regulating external motivation and teacher autonomy motivation, that is, the golden mean thinking has no significant change in regulating the relationship between external motivation and teacher autonomy motivation.

The golden mean thinking regulates the teacher's autonomous motivation and initiative innovation behavior, which

has a regulating effect, that is, the golden mean thinking has a positive regulating effect when regulating the autonomous motivation and the teacher's autonomous activation relationship.

Discussion

Contributions to academic and educational management practices

This study mainly explores the relationship between external incentives and the initiative innovation behavior of college teachers. Past research has two results on the relationship between external incentives and innovation behaviors. For example, Fischer, Malycha, and Schafmann (2019) believe that compensation incentives can reflect The management concept of distribution according to work has an important motivating effect on individual innovation motivation and behavior; Begum and Hamzah (2017) research points out that the application of performance compensation will make employees behave conservatively in the innovation process, which is not conducive to the creation of innovative behavior.

This study examines which research conclusions are supported by the relationship between incentives and teachers' initiative innovation behavior in a university setting.

The research results show that external incentives have a significant explanatory power on active innovation behavior ($\beta = .20$, $p < .01$), that is, for every unit of external incentives in colleges and universities, teachers' active innovation behavior will increase by 0.2 unit. The results are consistent with the findings of Fischer, Malycha and Schafmann (2019).

Hwang and Jung (2018) pointed out that external incentive measures are a kind of tangible reward compared with internal incentive measures. They include compensation, promotion and other measures. Compared with intangible reward, tangible reward is considered to more effectively promote employee creativity. . Therefore, in the context of university management, it is recommended to optimize the salary increase system and the promotion system of titles and titles, and pursue the maximization of incentives, in order to stimulate more active and innovative behaviors of teachers. According to Vroom's expectation theory, the incentive power = Σ valence \times expected value, the valence is the incentive object's valuation of the behavioral goal, and the expected value is the probability estimate of the incentive object's achievement of the behavioral goal. Value-oriented, the difficulty of realization is within the tolerance range of self-effort, and the incentive force of incentive measures will reach the maximum (Yu, 2014). According to this theory, university managers should evaluate whether the content of incentive measures meets the needs of teachers and whether the difficulty is within the teachers' range from the perspective of teachers, so as to ensure that incentive measures can exert the maximum motivation.

Many previous studies have pointed out that teacher's autonomy motivation completely or partially mediates performance evaluation, organizational innovation atmosphere, leadership type and teacher's innovation behavior (Baum & Baumann, 2018; Wang & Liu, 2017), this research further It is explored that in the external incentive measures and the initiative innovation behavior of college teachers, the motivation of autonomy will show a full or partial intermediary role.

Studies have shown that when examining the explanatory power of external incentives and autonomous motivation to active innovation behavior, the explanatory power of external motivation is not significant, while the explanatory power of autonomous motivation is significant. According to the judgment of Baron and Kenny (1986), the intermediary effect is valid, and the autonomic motive is a complete intermediary of external incentives and active innovation. Research shows that external incentives in colleges and universities have an impact on teachers 'initiative innovation behaviors by motivating teachers' autonomy.

In the context of university management, how to stimulate teachers 'autonomy is the key to improving teachers'

innovative behavior. Yu (2014) pointed out that the satisfaction of behavioral results is high, and the motivational opportunity stimulates the behavior to repeatedly appear, which also strengthens the motivation itself. On the contrary, the satisfaction of behavioral outcomes is low, the motivational opportunity actively reduces the behavior, and the motivation is negative strengthen. Other studies have pointed out that the satisfaction of basic psychological needs affects teachers' motivation for autonomy, and autonomy support stimulates internal and external motivation of individuals (Klaeijssen, Vermeulen & Martens, 2018; Huang & Tan, 2018). These research results have important reference value for university managers to motivate teachers' initiative. In stimulating management of teacher's innovative behavior, managers need to adopt appropriate methods to timely affirm the teachers' initiative innovation behavior itself and the performance brought about by innovative behavior; they need to understand the content of teachers' basic psychological needs and work hard to reduce teacher expectations and management reality. The distance between them should be reflected in the setting of the management system and management links to support teachers' teaching and research activities in order to maximize the motivation of teachers' autonomy.

In the past, scholars have empirically studied the differences in individual behaviors under different cultural backgrounds, different ideas (such as: collectivism and individualism), and different regions (Zhou & Velamuri, 2018; Chunmei, Changxin & Zhiming, 2016; Luo, Zhou, & Zhang, 2016). This research introduces the theory of the Zhong-Yong practical thinking style proposed by Yang (2008, 2009), and explores the deep-rooted cultural value orientation of the Chinese nation as a guide to the Chinese nation. The external incentive measures are related to teachers' autonomy, motivation, and autonomy. Whether the relationship between sexual motivation and teachers' initiative innovation has a moderating effect.

Research shows that the positive motivation of the autonomy motives of the high-medium thinking group is higher than that of the low-medium thinking group, that is, in the context of university management, teachers with high-medium thinking have higher autonomy than teachers with low-medium thinking. Sexual opportunities inspire more active innovation. Combining the results of related research in the past (Pian, 2019; Li, 2016), this study believes that individuals with high and moderate thinking are good at examining the situation and hope to achieve a harmonious state with the external social environment in pursuit of innovation, thereby amplifying the influence of the environment. And the school's requirements for teachers' teaching and research work innovation, strengthened the role of motivation in behavior, and gave birth to active innovation behavior; when the innovation behavior around them, and the school's attention and recognition, high school mediocre thinkers for harmony, The pursuit of balanced interpersonal relationships will amplify the influence of peers and drive the generation of autonomous motivation, which in turn will lead to active innovation. Therefore, in the context of university management, strengthen the promotion of the spirit of excellent Chinese traditional culture among the teacher group, carry out the interpretation, research and application of the golden mean culture, so that it can be consciously recognized among the teacher group, form cultural self-confidence, be internalized in the heart, and fully. The close integration with teachers' teaching and educating work will promote the creation of teachers' initiative innovation behaviors (Pian, 2019; Du et al., 2014).

Inadequate research and follow-up research recommendations

Although this research has the value of the above academic and educational management practices and strives to be rigorous in the research process, there are still the following limitations, and suggestions for future related research are presented here.

This study has certain limitations in the selection of samples. The scope of the sample data is limited to undergraduate universities in non-central cities of one province in China. It is not involved in other regions and other types of universities. Therefore, it is possible that the conclusion of the study will be affected by factors such as regional

differences and organizational atmosphere.

This research is a cross sectional research, which is a "cross section" study of teachers' initiative innovation behavior at a certain point in time. The conclusion of the cross section research is that the causal inference between variables is more persuasive than the longitudinal study. Weak (Han & Sun, 2019), therefore, it does not reflect the dynamic process of external innovation measures for teachers' innovative behavior.

Pian (2019) research points out that individuals with a moderately high tendency will pay attention to staying "in the middle" with the organizational environment, and the organization's innovation requirements and expectations of employees will be very strong in the eyes of individuals, which will in turn lead to behavioral motivation. However, the hypothesis about the moderating effect of the golden mean thinking between external motivation and autonomic motivation is not supported by data, and the hypothesis is not valid. It is suggested that in future research, pay attention to reselecting the measurement dimensions of the multiple scales of the moderation practical thinking system, in order to fully reveal the moderating relationship between the moderation thinking and organizational policy guidance and individual behavior motivation.

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