

Research Article

# Research on the Path of Stimulating Active Innovation Behavior of Postgraduates Based on Planned Behavior Theory -- Take the Service Management Course as an Example

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## Abstract

As the high-level training talent, postgraduates are the new quality productive forces of national development. However, the quality of graduate training in economics and management is worried in reality, mainly reflected in the lack of students' innovative ability. The root cause is that graduate students engage in more passive innovative behaviors rather than proactive ones. Scholars have explored the pathways to enhance graduate students' innovative ability and behavior from both macro perspectives of cultivation models and micro perspectives of teacher-student relationships. However, they have overlooked the important linkage role of courses. Courses are an educational form in which multiple relationship subjects participate frequently under the guidance of cultivation model principles, and have an important driving role in stimulating graduate students' proactive innovative behaviors. This study firstly summarizes the characteristics of postgraduates from two dimensions of study objective and knowledge distance. Then, based on the theory of planned behavior, the whole process of "Service Management" is designed from three perspectives: attitude, subjective norm and perceived behavior control. The teachers actively guide and interact with the graduate students online and offline before and after the course to stimulate their proactive innovative behavior attitude. The ranking of group competition, group interaction and peer evaluation can influence the graduate students' proactive innovative behaviors' subjective norm. The visual learning list and positive feedback from the teachers can enhance the postgraduates' perceived self-control of proactive innovative behavior. This study reformed the "Service Management" course by activating the postgraduates' positive attitude of proactive innovative practice, creating a positive subjective norm, enhancing their perceived behavioral control of proactive practice, and thus stimulating the innovative practice behavior of business management postgraduates, which finally improve their comprehensive literacy.

## Keywords

Postgraduates in Economics and Management, Active Innovation Behavior, Service Management, Planned Behavior Theory

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## 1. Introduction

As the key high-level talents, the training mode and quality of graduate students have attracted much attention. Whether graduate students can improve their innovation ability in both academic research and enterprise practice is the key to becoming a new quality productivity and contributing to national construction. According to the "2024 graduate Student Enrollment Survey Report" released by China Education Online, there is a phenomenon of "clustering" of humanities and social sciences in the selection of postgraduate majors. That is, humanities and social science majors, especially business administration majors, account for a large number of disciplines [1]. However, in sharp contrast to the surging number of graduate students in economics and management, the quality of graduate training has not reached the expected effect. As pointed out by Liu Narisu, the academic innovation ability of graduate students in economics and management has been significantly improved under the background of perfect training mode [2]. However, compared with science and engineering majors, its academic innovation ability still has many shortcomings.

Scholars have explored the mechanism of improving the ability of graduate students in economics and management from the aspects of training mode, teacher-student relationship and curriculum construction. But these are more focused on the training results, that is, the improvement effect of postgraduate comprehensive literacy. Ignoring the importance of active innovation behavior in the process. Innovation is a necessary quality for graduate students, but subject to the training mode or course result orientation, graduate students may show passive innovation behavior, so they will not show significant improvement in innovation ability. Therefore, if graduate students in economics and management want to improve their scientific research innovation ability, they need to stimulate their active innovation behavior in the course learning process.

This has far-reaching implications for the reform of graduate courses. First of all, postgraduate courses are the link to ensure the implementation of the training model. Secondly, in the course learning, graduate students will be influenced by their peers, which is more extensive than the duality between tutors and graduate students. Therefore, this study discusses how to reform and innovate the course design of "Service Management". Service Management is a core compulsory course for economic and management graduate students. In theory, it pays attention to the academic frontier from the perspectives of macro environment, enterprises, employees and consumers. In practice, AI intelligent application and service innovation help students understand the logic of practical application.

To sum up, this study classified and analyzed the graduate students in economics and management according to the two dimensions of learning goals and knowledge gap. Then, based on the theory of planned behavior, a pre--in--after-class

course design is constructed to ensure and stimulate students' positive attitude towards active innovation, create subjective norms of active innovation behavior, and enhance students' perceived behavior control of active innovation behavior. Graduate students can obtain a wide range of knowledge in the course, actively and innovatively apply theoretical knowledge to practical scenarios, raise and solve problems in practice, and achieve both theoretical and practical improvement effects.

## 2. Literature Review

### 2.1. Research on the Cultivation of Economics and Management Graduate Students at Home and Abroad

The discipline of economics and management is a key subject in the construction of new liberal arts. The quality and ability of graduate students in economics and management are reflected in the quality of the construction of new liberal arts. In recent years, scholars at home and abroad have made a lot of exploration on the training mode, tutor factors and curriculum construction of graduate students in economics and management.

In the training mode. Domestic scholars mainly explore the training mode from two aspects: theory and practice. For example, Ren Zhian (2014) proposed the "1+PIE" (Practice of innovation education) model of cultivating innovation ability of graduate students in economics and management, which focuses on the expansion of theoretical knowledge in the first year and innovation practice education in the second and third years [3]. Ye Kangtao (2023) summarized that the practical training of academic graduate students of business administration in Renmin University of China focuses on encouraging students to master cutting-edge theoretical knowledge and tools, while pursuing practicality and encouraging graduate students to develop and write cases [4]. Pei Jinsong and Wang Qianwen (2024) put forward the exploration and practice of systematic concept training model for graduate students under the guidance of national strategy [5]. On the other hand, the foreign graduate training mode of economics and management focuses on the cultivation of interdisciplinary literacy and self-learning ability. For example, Yang Tian'an et al. (2022), when analyzing the training mode of economics and management graduate students in Technical University of Munich, Germany, pointed out that the thought of "combining plumber and worker" reflects the interdisciplinary thinking, which is conducive to the cultivation of students' innovation and entrepreneurial ability [6]. The UK values student learning, development and experience, and provides excellent learning resources and teaching [7].

At the graduate tutor level. Su Hui et al. (2021) pointed out

that mentor benevolent and virtuous guidance styles have positive predictive effects on graduate students' innovative behavior, while authoritarian guidance styles have negative predictive effects on graduate students' innovative behavior [8]. Wu Libao et al. (2024) found that tutor guidance had a significant positive impact on master students' innovation behavior; Innovation self-efficacy and positive emotion play a part of mediating role between tutor's guidance and master's innovation behavior [9]. Li Qiming et al. (2024) empirically-found that alienation of mentoring relationship would affect the mental health of graduate students and thus hinder their innovative behavior [10].

In the course construction. There is such a phenomenon in the United States: professional masters pay attention to basic knowledge, and academic graduate students pay attention to innovation ability. The United Kingdom attaches importance to practical research and ability training of research methods [11]. In recent years, Chinese scholars have proposed many innovative course designs. For example, Jin Lei et al. (2014) introduced case teaching method into ERP experimental teaching for graduate students in economics and management [12]. Zhang Mei et al. (2024) emphasized the value-leading function of curriculum [13].

In conclusion, compared with the research on graduate training mode and teacher-student management, there are few related studies on curriculum construction. This ignores the important role of curriculum construction in cultivating graduate students' innovative ability. On the other hand, postgraduates' lack of active innovative practices also results in their low level of comprehensive literacy. This is mainly because the quality of graduate students is different, and there are great differences in learning motivation and learning attitude. Without active innovation behavior, graduate students will not accumulate knowledge and develop skills. Therefore, how to stimulate students' active and innovative behavior in curriculum design is the main goal of this study.

## 2.2. Theory of Planned Behavior

Ajzen (1985) extended the Theory of rational Behavior and proposed the Theory of Planned Behavior (TPB). He believes that individual behavior is determined by behavioral intention. Behavioral intention is influenced by behavioral attitude, subjective norm and perceived behavioral control [14]. The theory of planned behavior has a strong explanatory power in predicting individual behavior, so it is widely used in the research of exploring the influencing factors of postgraduates' behavior. For example, Yu Yun et al. (2014) used the theory of planned behavior to explore the generation mechanism of graduate students' innovative behavior [15]. Zhang Meiling (2018) analyzed the entrepreneurial intention of graduate students by using the theory of planned behavior [16]. Fang Runsheng et al. (2012) confirmed the research interest of graduate students [17]. For example, interest in academics, paper topics and related activities can significantly inhibit

their academic misconduct, which also supports the significant predictive effect of attitude or positive cognition on behavior.

Although scholars have verified the predictive effect of planned behavior theory on graduate students' innovation, entrepreneurial behavior or behavioral intention by using empirical research methods, they have ignored the theoretical value of planned behavior theory in course design. The active innovation behavior of graduate students is not only affected by the training program and the relationship between teachers and students, but also in the interaction with teachers and peers in the classroom. Therefore, based on the theory of planned behavior, this study carries out the reform and innovation design of service management courses from three aspects: active innovation behavior attitude, subjective norms and perceived behavior control of graduate students.

## 3. Analysis on Characteristics of Economics and Management Graduate Students

This study analyzes the characteristics of graduate students in economics and management from the two dimensions of learning objectives and knowledge gap, and divides graduate students into four types.

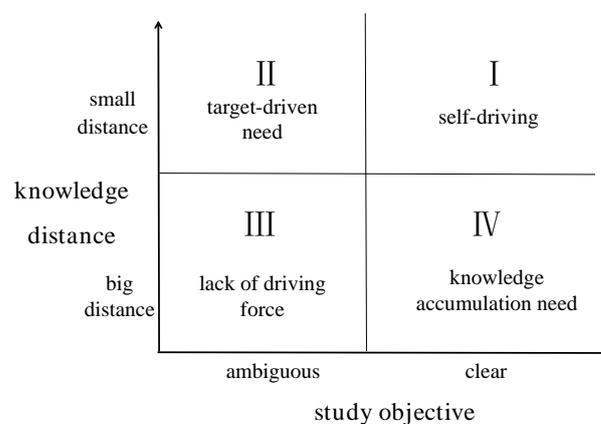


Figure 1. Postgraduate characteristics.

Learning objectives refer to whether the graduate students have a clear plan for their research career, and whether they have a clear cognition and expectation of the learning objectives and results of the course. For example, some graduate students are result-oriented, hoping to find research topics and research methods from the course learning, so as to quickly meet the graduation conditions; Some graduate students are more ignorant, according to the training plan to take classes step by step or passively complete the learning task assigned by the tutor, the active learning degree is low, the goal is unclear. In 2019, the General Office of the Ministry of Edu-

cation of China issued the Notice on Further Standardizing and Strengthening the Management of Graduate Education, pointing out that at this stage, the initiative of Chinese graduate students in learning and self-management is still insufficient, which reflects that some graduate students' learning goals are not clear [18].

Knowledge gap originally refers to the degree of knowledge similarity between the knowledge source and the knowledge receiver [19]. The greater the degree of knowledge similarity between the two, the smaller the knowledge gap. This study introduces the concept of knowledge gap, which refers to the degree of consistency between undergraduate majors and economics and management majors of graduate students. If the graduate student majored in economics and management during the undergraduate period, the knowledge gap is small. If the engineering major, such as computer, machinery and other interdisciplinary postgraduate students, their undergraduate learning knowledge and economic management knowledge gap is large. In the initial stage of postgraduate study, there will be a weakness in knowledge absorption. Han Liping et al. (2024) analyzed the professional background of MBA graduates in Inner Mongolia University of Technology in the past five years and found that only 21% of the students majored in business administration during their undergraduate years [20]. More students have not been exposed to much management knowledge in the undergraduate stage, and only learn the content of professional courses through the entrance examination. This is not enough to help them quickly adapt to the graduate level of business theory and practical knowledge learning requirements.

Class I graduate students with clear learning goals and small knowledge gaps. This kind of students majored in management during their undergraduate studies. They can understand and absorb management phenomena and knowledge well, and have a strong initiative in learning. Their learning is more self-driven.

The Class II graduate students, the learning goal is vague,

the knowledge gap is small. This kind of students do not have clear learning goals for graduate students, follow the trend, and have strong utilitarian learning. They are often result-oriented and do not pay attention to the learning process. But they have the experience of systematically learning management knowledge. If they take the initiative to learn, they will quickly improve their scientific research ability.

The Class III graduate students, the learning goal is vague, the knowledge gap is large. This kind of students are the focus of the course, have no interest in learning and have no knowledge reserve. Once the difficulty of the course increases and the learning progress can not keep up, students are more likely to study poorly.

Class IV graduate students with clear learning objectives but large knowledge gaps. Such students are generally engineering majors, such as computers, machinery, finance and other majors. They have a greater interest in management, but need to accumulate more management theory and practical knowledge.

In short, the class III graduate students are the most noteworthy students, their active learning motivation is not strong, and the knowledge reserve is insufficient, whether it is course learning or scientific research work, may not be able to quickly adapt and achieve good results. Teachers need to focus on motivating and guiding this group of students. In addition, compared with the negative impact of knowledge gap, learning motivation has a greater impact, so the Class II graduate students are also the focus of teachers.

#### 4. Optimization Design of Service Management Course

This paper deeply discusses how to effectively train college students' service innovation ability under the background of new quality productive forces.

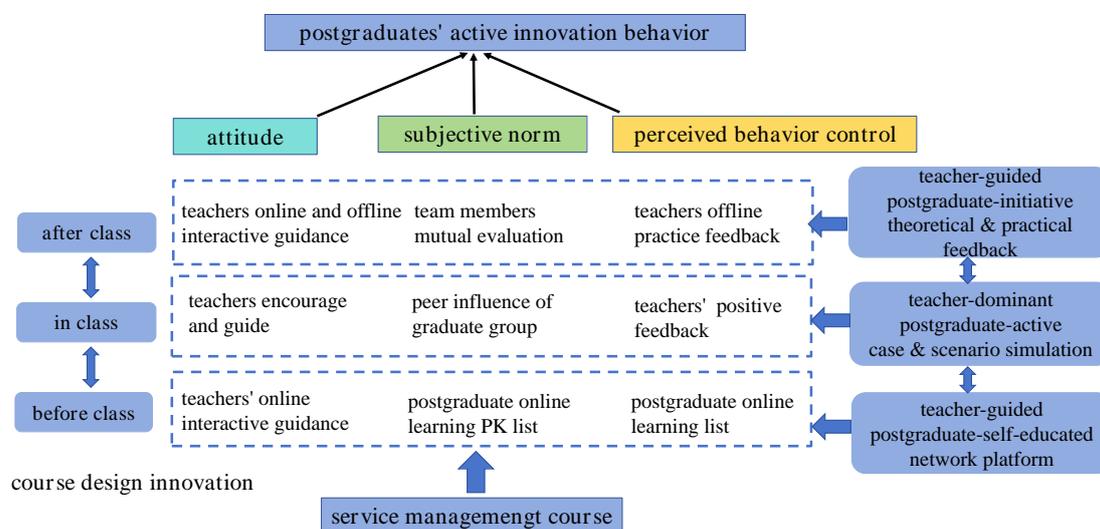


Figure 2. Service management course design framework.

#### 4.1. Pre-Class Design

In this stage, students are encouraged to study independently with the help of the network platform and the guidance of teachers. In order to stimulate students' positive attitude of active learning and innovation, teachers publish discussion posts with the help of software such as Rain Class and Learning Pass before classes start to interact with students and stimulate students' curiosity and learning interest in the courses.

Assigning a study list before the start of the course is a key step in promoting the perception of behavioral control in graduate students. Study lists are shareable editable notes. Students can leave their own impressions in their notes, and other students can participate in interactive discussions. The study list contains reference books and related cutting-edge literature on service management, and students can participate in adding and supplementing the list literature. Yang Gang et al. (2012) confirmed that the daily reading time and subject span of reading information of graduate students have a significant impact on the ability of scientific research and innovation [21]. At the end of the course, students can sort out the literature review according to the literature review, which can be used as the final homework to participate in the grade assessment.

PK ranking in the study list can amplify the peer influence. The ranking of the list is mainly evaluated by the number of literature read by students, the number of literature contributed by students, and the quality of students' participation in literature study and discussion (evaluated here by the teacher). Competitive lists can motivate graduate students to actively participate in learning and innovation in terms of subjective norms.

The interactive process before class is completed with the help of the network platform, and the teacher plays a guiding role to help students cultivate the self-learning behavior habits of graduate students in the digital age. For example, Sun Chiyao et al. (2023) confirmed through investigation that both internal motivation (such as reflecting on self-knowledge reserve) and external motivation (such as improving reputation and popularity) of graduate students would encourage them to exhibit more active and higher quality online knowledge sharing behaviors [22].

#### 4.2. Design in Class

The scene of this stage is mainly in the offline classroom. Faculty-led, interactive graduate students learn cutting-edge theories and practice research methods. The content and style of the teacher's lectures can affect the attitude of the graduate students and stimulate their interest in learning. This requires teachers to grasp the learning situation of postgraduates in class in time, give positive feedback to students' good performance in time, and stimulate students' positive attitude towards active learning and innovative behavior.

Project-based teams are a common form of teamwork in graduate programs. When group members form a team, it is not recommended to form a team freely, but the teacher should make a combination according to the investigation of students' learning goals and knowledge gaps before class. Students with vague learning goals and large knowledge gaps are placed in a group with students with clear learning goals and small knowledge gaps. Students with clear learning goals can bring positive stimulation to students with vague goals. Graduate students with a foundation of management knowledge can provide learning assistance to students who have different majors. All these will affect the active learning and innovative behavior of graduate students through subjective norms.

Graduate students can master management theory and methodology in classroom discussion, interaction and practical simulation, so as to enhance the perceived control of active innovation behavior.

Each class will have a discussion topic. Graduate students can collect relevant information before class, and actively discuss with teachers in class, and teachers can give timely and positive feedback. This way can promote the accumulation of students' theoretical knowledge. Situational education methods of economics and management include enterprise practice, entrepreneurs entering the classroom, case teaching, role playing and simulation teaching, etc [23]. Service management can use almost all of these methods to teach and achieve a scenario in which students construct theoretical knowledge. Service management involves a variety of research topics such as user-organization-employee, such as human-machine interaction and interpersonal interaction scenes in services, which can be simulated completely in the classroom. Graduate students can personally feel the emotional and cognitive changes of customers or employees in the process of service management, and feel the evolution process of service innovation.

The teaching process of the course is mainly teacher-led knowledge learning, students participate in interactive practice and other ways. Through diversified teaching methods such as case analysis and situational experiments, the learning goal is clear and the knowledge gap is narrowed. Finally, graduate students can stimulate the attitude of active innovation, feel the external influence of active innovation, and enhance the behavioral control of active innovation.

#### 4.3. After-Class Design

This stage mainly integrates online and offline platforms to promote students' proactive and innovative attitude and behavior control in the form of teacher feedback and team mutual evaluation. The influence of the course should not end when the course is over. After the end of the course, teachers should maintain a good interactive relationship with students through online platforms to stimulate students' recognition of

business administration. For example, Zhu Jian et al. (2023) confirmed through 413 questionnaires of graduate students that professional identification brings positive emotions and active innovative behaviors [24].

Graduate students' cognition of learning and innovative behavior is not only influenced by teacher's evaluation, but also by peer evaluation. The course uses each team member's score as part of the assessment. On the one hand, it helps teachers to fully understand the performance of graduate students in group work, on the other hand, it also encourages graduate students to reduce free-riding behavior in group work, actively participate in learning and innovation, and actively search for learning knowledge instead of passively accepting teacher's teaching.

Feedback after class is especially important. Dong Xuemin et al. (2024) analyzed the structured curriculum for graduate students at Imperial College London and proposed that teaching and support forms should be improved [7]. Classroom teaching is a dynamic process of interactive update, and students' classroom performance and homework should be timely feedback. The evaluation of students' homework can be given face to face, and the introduction of external expert evaluation is very important for the cultivation of students' practical ability. At the same time, giving more positive feedback when giving evaluation can promote the improvement of students' self-efficacy and generate a positive attitude towards active learning behavior. At the same time, different feedback evaluations will trigger the peer comparison effect and motivate students to study hard in order to reduce the gap between classmates. Affirming students' achievements can promote perceived behavior control, and promote active learning behavior in attitude, subjective norm and behavior control.

## 5. The Safeguard Measures of Service Management Course Innovation Design

The innovation of service management curriculum design puts forward higher requirements for the teaching ability and knowledge system of teachers or teachers' teams. First of all, in terms of knowledge system, masters of business administration usually set up business management, technical economy, supply chain and other directions, but there is a gap in scientific research knowledge required for each direction. This requires teachers to have a high level of holistic thinking and systematic thinking to help students build a knowledge system. Teachers should have sufficient breadth and depth of knowledge in the field of service management. When creating a study list, make sure that the content of the list is classic and cutting-edge. Secondly, in terms of teaching methods, teachers should adopt advanced interactive learning tools to answer questions for students after class and give play to the long tail effect of stimulating students' learning enthusiasm. Introduce

high-level external experts to participate in teaching activities and evaluation of teaching effects to help students improve their academic literacy and practical ability. Supervise and deeply understand the situation of graduate students, and give real-time feedback on their work [25].

Graduate students need to realize that active innovation behavior can help them accumulate scientific research knowledge and improve practical ability. The curriculum needs to be co-built by teachers and students. Therefore, graduate students should change the concept of passive learning, take the initiative to participate in curriculum activities, and accumulate theoretical knowledge in the learning list. During group discussion, I will contribute my own creativity and achievements, and actively participate in the process of perceived service innovation in class and extracurricular practice activities. On the other hand, the graduate students with vague learning objectives and large knowledge gap should seek the support and help of teachers and peers to quickly shorten the gap between them and adapt to the post-graduate career.

Interest in new technologies is providing more support for classroom instruction and extending the impact of the classroom online and beyond the classroom. Teachers and students should learn to use new teaching technologies such as AI. Enterprises are gradually increasing the requirements of post-graduates' career development ability, and postgraduates should also cultivate the quality of theory guiding practice. The introduction of external expert evaluation in the classroom will help students to better understand the quality requirements of students in the business community, so as to improve the overall quality of scientific research and career development.

## 6. Conclusion

The initiative innovation behavior of postgraduates can improve their scientific research ability and career development ability. Service management course focuses on multiple factors such as organization, employee, user and technology in the process of service innovation, and is an adaptive course to help graduate students accumulate theoretical knowledge and exercise practical literacy. This study summarizes the characteristics of graduate students in economics and management from two aspects of learning objectives and knowledge gaps. Based on the theory of planned behavior, the whole process of service management is reformed from pre-after-class. This paper designs a curriculum reform plan based on the concept of teachers' guidance before class, students' self-study, teachers' leading and students' interaction during class, teachers' guidance and students' initiative after class.

Theoretically, this study firstly summarizes the characteristics of business and management postgraduates from the perspectives of study objectives and knowledge distance, which provides a new perspective for subsequent scholars to explore the behavior of postgraduates. Compared with engi-

neering postgraduates, business and management postgraduates have more diverse sources of origin and different backgrounds in knowledge. At the same time, many business and management students have insufficient understanding of the important role of management, which make their utilitarian learning goals stronger. Some students even have vague learning goals. The four types of postgraduate proposed and summarized in this study can deeply analyze the characteristics of postgraduates and prioritize teaching in course teaching, providing targeted teaching according to their characteristics, such as postgraduates with clear learning motivation but large knowledge distance, who can focus on theoretical and practical knowledge teaching to enhance their behavior control ability.

Secondly, this study provides a new theoretical perspective for cultivating the innovative ability of business and management postgraduates by introducing the theory of planned behavior, deepening the understanding of the stimulating mechanisms of postgraduates' innovative behavior. Although some scholars have verified the influence effect of the theory of planned behavior on promoting postgraduates' positive behavior, they have not proposed implementation paths from the perspective of course reform. This study fills this gap by applying the theory of planned behavior to course design and proposing a practical and feasible course implementation plan, enriching the theoretical application value of the theory of planned behavior and providing reference for subsequent scholars to refer to the theory of planned behavior.

In practice, firstly, this study reiterates the importance of service innovation courses again. Service innovation is still a hot topic in the digital economy era, and manufacturing and service industries are advocating service innovation. Some universities have successively opened design courses or majors in service innovation. Service management course not only has a positive impact on business and management postgraduates, but also on industrial engineering and other postgraduates. The course reform plan of this study provides reference significance for business and management postgraduates and those who intend to open service management similar courses and majors.

Secondly, through the whole process of pre-class, in-class and after-class design of "Service Management" course, this study aims to activate the innovative practice attitude of graduate students, create a positive atmosphere for innovation, and enhance their behavioral control, so as to effectively promote the improvement of innovation ability and comprehensive literacy of graduate students in economics and management. It is of great practical significance to improve the quality of graduate training and meet the national demand for new quality productivity.

## Abbreviations

TPB      Theory of Planned Behavior

## Author Contributions

**Lingling Yu:** Resources, Data curation, Supervision, Investigation

**Bu Zhang:** Data curation, Software, Validation, Investigation, Visualization, Writing – original draft, Writing – review & editing

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## Data Availability Statement

The data is available from the corresponding author upon reasonable request.

## Conflicts of Interest

The authors declare no conflicts of interest.

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## Biography



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## Research Field

**Lingling Yu:** Information system use behavior and human resource management, service innovation management, tourism reception industry management

**Bu Zhang:** Artificial intelligence application, service innovation management, management information systems, organizational behavior, human resource management