RESEARCH ON THE FORMATION MECHANISM OF
ARCHITECTURAL DESIGNERS’ CREATIVE DEVIANCE - BASED
ON THE PERSPECTIVE OF PLANNED BEHAVIOR THEORY

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With the improvement of architectural design project management and the standardization of the design process, enterprises have encountered some obstacles on the road to innovation. Among them, the deviant innovation behavior, as an obscure independent innovation behavior, has gradually attracted the attention of scholars. The characteristic of deviant innovation behavior is that, in order to achieve the purpose of innovation, innovators will use various resources to support their innovative ideas. Among them, deviant innovation behavior not only promotes innovation but also brings management and risk challenges to enterprises. Therefore, only by clarifying the causes and conditions of the deviant innovation behavior can we truly manage the deviant innovation and do a good job in the innovation management of enterprises on the basis of reducing operational risks.

Based on the current situation of high education levels and low innovation success rates among architectural designers, this study discusses the environmental factors contributing to deviant innovation behavior and explains its formation mechanism. In general, the contributions of this paper to existing research are as follows: 1) On the basis of the existing literature, this study reviews the relevant concepts and measurement methods of deviant innovation behavior and the influencing factors are discussed. 2) Based on the theory of planning behavior theory, the deviant innovative behavior model is constructed, which reveals the role of behavior attitude, subjective norms, and perceptual behavior control in affecting employee deviant innovative behavior. 3) Previous studies have directly applied the theory of planned behavior to the interpretation and prediction of behavior. This study complements and extends the boundary conditions, puts forward the view that task
complexity will regulate the relationship between deviant innovation willingness and deviant innovation behavior, and has verified it.

Keywords: bootlegging theory; planned behavior; creative deviation intention; proactive personality perceived organization support; uncertainty avoidance

Research background

In the era of the knowledge economy, innovation is not only the core element for enterprises to maintain their competitiveness but also an important driving force to promote social progress. Therefore, the innovation behavior of architectural design enterprises should also get more attention and support. However, with the continuous optimization of project management systems and the standardization of the design process, enterprises face more and more challenges on the road to promoting innovation.

These challenges stem not only from the changing demands of the external market environment but also from the organizational structure and culture of the enterprise. Especially in architectural design enterprises that emphasize the avoidance of uncertainty, innovation behavior often faces great restrictions. In the process of architectural design, it is a common phenomenon for Party A and the leadership to modify the innovative ideas in the work.

Yan (2014) pointed out that when the organization's system, authority, or management hinders employees' innovation, employees may use deviant behavior to achieve their original innovation goals. Especially in architectural design enterprises, this kind of standardized design process management often makes designers encounter obstacles in the pursuit of innovation. Faced with this situation, designers may choose to hide their innovation behavior or stick to their innovation efforts even in the face of instructions to ban independent innovation. In the face of the increasing "deviant innovation" phenomenon, architectural design enterprises can not only ignore or adhere to the original business model. On the contrary, enterprises should actively face up to the deviant innovation behavior of designers, start by exploring the factors affecting this innovation, and adjust the management strategy appropriately so as to encourage and use the spirit of innovation.

Through such a strategy, enterprises can not only stimulate innovation vitality but also promote their own further development and strengthen competitiveness. In addition, enterprises also need to, while encouraging innovation, establish an effective risk management mechanism to ensure that deviant innovation behavior will not bring innovation breakthroughs while bringing uncontrollable risks to enterprises.

Therefore, it is crucial to study the formation factors of deviant innovation behavior because it helps enterprises effectively manage the innovation process. Insight into these factors, including employee behavioral attitudes, subjective norms, perceived behavioral control, and their perception of organizational innovation support and tolerance, can help businesses build a cultural environment that promotes innovation. In addition, through effective innovative management strategies, the enterprise can not only stimulate the innovation potential of employees but also reduce operation risks, ensure stable operation, and promote the long-term development and competitiveness of the enterprise.
**Objectives**

Facing the uneven design ability of architectural designers, frequent deviant innovation behavior, and difficult design innovation management. Therefore, through the analysis of various management phenomena in architectural design enterprises, this paper explains the connotation of deviant innovation behavior in architectural design enterprises and lays a good theoretical foundation for the concept definition of subsequent research.

Secondly, this paper will explore the causes of deviant behavior from the perspectives of behavior attitude, subjective norms, perceptual behavior control, and task characteristics.

Finally, combined with the management practice, we explore how to manage the designers' deviant innovation behavior scientifically and effectively.

Therefore, this paper aims to study the deviant innovation behavior of designers in architectural design enterprises so as to help managers better manage the design innovation and avoid the design risks and hidden dangers caused by the deviant innovation. On the theoretical level, the existing research is still imperfect.

This paper, using the plan behavior theory to deviant innovation behavior, from behavior attitude, subjective norms, and perceptual behavior control three aspects of deviant innovation behavior induction and analysis, clears the concept of architectural design deviation innovation behavior connotation, and perfects the existing deviation innovation behavior theory research.

**Literature review**

**Summary of theoretical studies on planned behavior**

Ajzen & Fishbein (1973) first proposed the concept of rational behavior theory (theory of reasoned action) and pointed out those behavioral attitudes and subjective norms will have a direct effect on the behavioral intention, while the behavioral intention will have a direct effect on the actual behavior. Later studies show that behavior is not entirely determined by the individual's will, and in actual society, most people's actions are not only determined by the subjective will of the individual but also by the ability and conditions of the individual to perform the behavior. Therefore, Ajzen added the perceptual behavior control factor on the basis of the rational behavior theory and thus formed the theory of planned behavior (Theory of Planned Behavior).

The theory of planned behavior is a three-stage behavior analysis model (Xu, 2012). The first stage is that the willingness to behave determines the individual's behavior. In the second stage (Zhang, 2018), there are three main factors for the motivation of individual behavior: firstly, the behavior attitude, the positive or negative evaluation of a particular behavior; secondly, the subjective norms, namely the social pressure that the individual feels in a particular behavior; and finally, the perceptual behavior control, that is, the expectation of a particular behavior and the controllability of the behavior. In the third stage (Yan, 2014), the possible behavioral beliefs about the various outcomes of an individual's behavior affect people's behavior attitude, subjective norms, and perceptual behavior control.

**Summary of the research on deviant innovation behavior**

In 1967, Knight first proposed deviant innovations, arguing that when their ideas were influenced by opposition within the organization, they implemented them, which were informal and unapproved by the organization and their superiors.
In China, this concept first appeared in the study of Huang (2017), who directly used the Chinese word "deviant innovation" to express this concept. He did not deeply discuss the word "deviant innovation" and did not explain what "deviation" is, but directly used the Chinese translation of "bootlegging innovation." Later, some Chinese scholars pointed out that the main English expressions of innovation are "bootlegging" and "creative deviation." However, when Huang (2017) preferred to use the definition of Augsdorfer (2004) as "Bootlegging Innovation" translation "devinnovation," scholars did not continue to study the word but chose to continue to use the word to express the research concept, ignoring another school of view in the field, "Creative Deviance."

Yang (1995) said that because the Chinese scholars are in the process of learning from the learning problems, in many sociological works they will use different words to translate "deviance", such as "deviant behavior", "orbit", "behavior deviance", "abnormal behavior" etc.

Therefore, in the translation of "deviant innovation", words should be more in line with research and the Chinese context. The semantics of these words are particularly similar, but the first several words have obvious derogatory meanings, which leads to a large ambiguity in indicating "deviant innovation", resulting in the idea that "deviant innovation" behavior is a negative behavior or destructive violation. The word "anomie" is relatively neutral, which can appropriately expand the research scope of "deviant innovation" so that the follow-up research can integrate more phenomena into it.

Wu (1988) believed that "deviant behavior" is relative because the norms change with the times, society, and the collective. Moreover, the study of "deviant behavior" involves the concepts of contradictions between social order, human history, law, and morality (Zhu, 2007). "Deviant" is not a nature determined by the behavior itself, but a nature produced by the interaction between the actors and the responders to the behavior (Yang, 1995).

**The deviant innovation under the theory of planning behavior**

Deviant innovation behavior is mainly an unconventional innovation behavior carried out by employees with innovation behavior as the carrier in the whole work cycle. Therefore, this paper focuses on the various influencing factors in the work, including behavioral attitude, subjective norms, perceptual behavior control, and task characteristics. On the level of behavioral attitude, it mainly discusses the initiative of employees in the face of various difficulties. At the level of subjective norms, it explains the degree of organizational support for different innovative behaviors. At the level of perceptual behavioral control, it clarifies the degree of individual control over behavioral decisions when faced with them. At the level of task characteristics, the objective attributes of work tasks are mainly summarized.

(1) Antecedent constructs from the perspective of behavioral attitude

From the individual level, employees need to face all kinds of difficulties and problems in their work, and their acceptance degree and solutions to the difficulties and problems will directly affect their behavior choices. For predictable work problems, active individuals tend to actively find and solve them.

Bateman & Crant (1993) first proposed the concept of active personality, which is defined as the stable tendency of individuals to influence their surrounding environment through active behavior.
Seibert (1999) believes that people with proactive personalities can even create conditions for their own innovative ideas.

Secondly, when trying to solve difficulties or problems, they are often accompanied by risks, and the attitude towards such unknown risks will also affect employees’ willingness to make choices. Deng (2005) believes that in an uncertain environment, people's economic behavior is risky, and people's attitudes towards risk can be divided into three categories: risk preference, risk neutrality, and risk aversion. In addition, there are also differences in risk preference (risk appetite) among different populations. Risk preference mainly depends on the premium brought by risk, and the difference between expected utility and actual utility determines the way employees make decisions about different risks.

Therefore, this paper believes that proactive personality and risk preference, as part of behavioral attitudes, are closely related to individual deviant innovative behavior. These two traits make individuals more willing and likely to try and implement innovation. Individuals with active personalities tend to actively face and solve problems, which makes them more likely to find and implement new and innovative solutions. However, risk preference affects individuals' decisions when faced with risks, and risk-taking individuals are more likely to try new, unknown, and risky innovative behaviors.

Therefore, proactive personality and risk preference are related to some extent to individuals 'deviant innovation behavior and they together shape employees' attitudes and willingness towards innovation behavior, thus influencing their actual innovation behavior.

**Methodology**

Based on the theoretical research, this paper adopts an empirical research method combining a questionnaire survey and data analysis, which not only ensures the breadth and depth of the research but also provides a solid foundation for drawing accurate and reliable conclusions.

This study first laid a solid theoretical foundation for the research by deeply reading the classical literature in the fields of planned behavior theory and innovative behavior in the academic paper database. Then, through the extensive literature review, this paper comprehensively sorts out the concept and theoretical development of planning behavior theory and deviant innovation behavior, so as to form a clear and in-depth understanding of the research status and development trend in these fields. This process not only lays a solid theoretical foundation for the following research but also provides a key perspective for deeply understanding the application of these theories in today's research context.

**Results**

(1) View the deviant innovation behavior of designers in the working environment.

From the perspective of the working environment, the main factors influencing the deviant innovation behavior of designers are the organizational environment and leadership style. The organizational innovation atmosphere of architectural design enterprises is weak, and the attention to mature applied technologies makes it difficult for architectural design enterprises to have an interest in immature concepts and technologies.

Moreover, architectural design enterprises are not product-oriented enterprises. After the completion of the project bidding and the contract being signed, their innovative results
cannot directly bring additional benefits to the enterprise. At the same time, in terms of incentive mechanisms, there is a lack of a perfect and clear incentive mechanism to motivate employees to innovate and a lack of a clear incentive feedback mechanism. In this case, the innovative behavior of designers will inevitably be hindered to a certain extent, and when they have a strong desire to innovate, they will take various means to promote the realization of their innovative ideas.

However, architectural design enterprises also have the conditions to support the innovation of designers. The complex work content determines that architectural designers must constantly learn and progress in order to adapt to the changing times and the progress of technology.

Therefore, most of the design staff's teams have a strong learning atmosphere and a more active working style. The working mode of multi-professional cooperation, simple organizational structure, and good relationships between superiors and subordinates make architectural design enterprises have enough failure tolerance, a variety of error correction mechanisms in the design process, and timely adjustment of work tasks. These work environments enable designers to engage in innovative behaviors and provide a sense of organizational support.

Secondly, managers' creative management of designers is mostly based on risk avoidance. The architectural design industry is a mature and orderly industry, and after years of experience accumulation, the work process of architectural design enterprises has been very perfect. At the same time, each leader gradually grows from the designer; they can tolerate some mistakes of the grass-roots designer and accept some new ideas, but they will continue to correct and improve them.

When new ideas are too naive, leaders will criticize and refute them according to their professional knowledge and development direction. Therefore, even leaders of different styles are very cautious about the innovative behavior of designers; although they can tolerate a small amount of mistakes, this tolerance is limited. This directly affects whether the designer will adopt deviant innovative behavior to counter the management of the leader so as to secretly realize their innovative ideas. Therefore, from the perspective of the working environment, architectural design enterprises do not support innovation behavior on the whole, but there is a good organizational atmosphere that enables designers to realize innovative ideas through deviant innovation.

(2) View the deviant innovation behavior of designers from the workflow.

From the perspective of the work process, architectural design is a work with complex content, diverse forms, and a lengthy process that requires constant communication and modification until the needs of various majors are met. The participating projects mainly include architecture, structure, water supply and drainage, HVAC, electrical, and other majors, among which they are mainly architecture, while other majors need to cooperate with the work. The design process of the whole construction project includes four stages: the preliminary planning stage, the building scheme design stage, the initial expansion design stage, and the construction drawing design stage.

Innovation is filled with obstacles, especially from other members of the design team. Due to the differences in expertise and direction among project participants, it is difficult for architectural designers to lead the development direction of the project. Deviant innovative behavior provides architectural designers with the possibility to realize innovative ideas, and
the results of this innovative behavior may not be directly reflected in the final design results, or the optimized design process may be unattractive and difficult to explain in design details.

(3) View the deviant innovation behavior of designers based on their work characteristics.

From the perspective of work characteristics, architectural design tasks require a high diversity of skills (skill variety). When designers express design schemes and communicate with owners and other professionals, they need to use a variety of skills to communicate effectively so as to effectively convey design ideas and avoid repeated work. In addition, the integrity of architectural design tasks (task identity) is very high. Architecture is the leading part of the project. From the preliminary work of the project to the drawing of construction drawings, the construction major needs to participate in the whole design process to guide and give feedback.

Secondly, compared with other participants, architectural designers place a higher importance (task significance) on the project tasks. The progress of the project will involve multiple professionals, and a small mistake may become a hidden danger of rework, which will affect the work efficiency of the whole team.

Finally, work autonomy (autonomy) and work feedback (feedback) are weak. Different levels of designers have different feelings of work autonomy. For experienced designers, the opinions and feedback of different majors will no longer restrict their design expression so as to provide better solutions. New designers, due to a lack of experience, cause frequent design problems, which affect the progress of the whole project.

Work feedback is a long and arduous process for architectural design, and the real results are often shown a few years later, with only the needs of the owner, the leader, the basic salary, and salary incentives. Previous studies have shown that working characteristics have a positive impact on innovative behavior.

Architectural design work characteristics will also affect the design of deviant innovation behavior; low work feedback and autonomy will greatly weaken designers’ intrinsic motivation, causing innovation behavior to reduce until it disappears or cause the direction of innovation behavior to change, so that innovation moves from the direction of the enterprise to the direction of their own development.

To sum up, architectural design requires designers to have diversified skills and rich experience, so they have a high possibility of carrying out deviant innovation behavior in the environmental space, and the results of their behavior will also change in direction due to the progress of the project and the change of the environment.

Discussion

The theory of planned behavior points out that intention is determined by behavior attitude, subjective norms, and perceptual behavior control, while behavior is determined by intention, and the same is true of deviant innovation intention. In addition, the influence of task characteristics on the willingness to innovate should be considered for specific tasks. In the existing research, the two views of "delayed disclosure advantage" and "breakthrough innovation," respectively, explain the reasons for the deviant innovation behavior due to various factors of the working environment.
However, this paper believes that work tasks are highly correlated with behavior and have the most significant impact on employees' deviant innovation, among which task characteristics directly affect employees' deviant innovation willingness and deviant innovation behavior.

**Influencing factors of deviant innovation willingness based on planning behavior theory**

In terms of behavioral attitudes, the personal characteristics and values of the designers can have an impact on their deviant willingness to innovate. Designers can foresee the conflict between innovative ideas and mainstream norms, and designers with a strong desire to innovate will take the initiative to take a deviant and innovative approach. Moreover, proposing innovative ideas directly to the leader may be rejected because the logic of the innovative idea is imperfect.

Therefore, designers with a high level of initiative are more likely to accumulate evidence through deviant methods, thus improving the possibility of innovative ideas being accepted by the leader. Risk appetite also affects designers' value judgments of innovative ideas and their judgments of results when fighting mainstream norms.

For more risk-taking, designers pay more attention to the value of innovative ideas and ignore the loss of failure. When more inclined to avoid risk, designers will carefully judge the value of innovative ideas and take a more hidden approach to deviant innovation in order to reduce the pressure from the organization. When the initiative of designers is weak and the risk preference is weak, organizing and guiding the deviant innovation projects will interfere with the judgment of designers, make the project development return to the mainstream norms, and thus affect the project breakthrough and innovation.

In terms of subjective norms, the organizational atmosphere and leadership style of an enterprise will have an impact on its deviant willingness to innovate. The organizational innovation atmosphere reflects the degree to which the organization supports the employees' innovative behavior. As one of the most important resources for designers, the supply of organizational resources is limited, leading some employees to choose to realize innovative ideas through deviant innovation. At the same time, the tolerance of leaders for subordinates is also the premise for the realization of employees' innovative ideas.

In terms of perceptual behavior control, the organizational atmosphere and cultural characteristics will enable designers to feel supported or hindered in performing deviant and innovative behaviors. The difficulty of this executive behavior is perceptual behavioral control. Among them, organizational sense of support and uncertainty avoidance will have a perceptual impact on designers' deviant innovation willingness and deviant innovation behavior.

The uncertainty of architectural project design work to avoid cultural characteristics will prevent designers from performing deviant innovation behaviors. A strong corporate culture will hinder the willingness of designers to innovate, making it easier for designers to realize the difficulty of realizing innovative ideas and the cost of fighting against mainstream norms.

Therefore, designers are more likely to achieve innovative ideas when they deviate from innovation with a strong sense of organizational support and a weak ability to avoid uncertainty.
The influence of task characteristics on the relationship between deviant innovation willingness and deviant innovation behavior

The objective characteristics of tasks will also affect the deviant innovation behavior of employees. Among them, task complexity refers to the difficulty and requirements of tasks, including the skills, knowledge, resources, and other aspects required by the task. High-complexity tasks often need more resources and energy to complete. Task urgency refers to the time conditions required to complete the task. For tasks with strong urgency, the priority must be completed in order to meet the task requirements.

Task complexity and urgency will affect employees' innovative willingness and behavior. On the one hand, task complexity and urgency may lead employees to feel anxiety and stress, which in turn can inhibit their deviant innovation behavior. Employees may feel that insufficient time, resources, and innovation will affect work quality and progress. On the other hand, task complexity and urgency may also encourage employees to produce deviant, innovative behavior because they will urgently need new or efficient methods to complete the task. In addition, different combinations of task complexity and urgency may have different effects on employees' deviant innovation behavior. Tasks with high complexity and low urgency often require a higher level of cognitive and innovative ability, and at the same time, there is more time for employees to implement innovative ideas, so it is easier to induce employees' deviant innovative behavior. However, in tasks with low complexity and high urgency, fast and standardized operation, rather than innovative solutions, may inhibit the deviant innovation behavior of employees.

Task complexity and urgency exist as objective factors in the task, which determine whether employees can transform the deviant innovation, will into the deviant innovation behavior and finally realize the innovative ideas. Therefore, task complexity and task urgency, as important features of tasks, have important effects on the transformation of willingness to behave.

In conclusion, according to the theory of planned behavior, deviant innovation intention is influenced by behavioral attitudes, subjective norms, and perceptual behavioral control and directly affects deviant innovation behavior. Among them, task complexity and task urgency have an impact on whether the deviant innovation willingness can be transformed into the deviant innovation behavior. Therefore, this paper constructs the logical framework of "deviant innovation intention—deviant innovation behavior," which explains the influencing factors and formation mechanisms of the deviant innovation behavior of architectural designers.

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