The Effect of Time Pressure on Deviant Innovation Behavior: The Mediating Role of Innovation Self-efficacy and Job Crafting

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Abstract. In 2023, the first year after the end of the epidemic, China's economic growth was strong. However, as the external environment is still characterized by strong uncertainty, enterprises still need to overcome the tremendous internal and external pressure and build their core competitive advantages through continuous innovation to achieve long-term development. For enterprises, the root of innovation originates from the innovation vitality of employees in the enterprise, therefore, this study needs to explore how to stimulate the innovation behavior of employees from the perspective of time pressure. At the same time, this study chooses challenge and hindrance stressors as the entry point and introduces innovation self-efficacy, job crafting, and deviant innovation behavior to explore the mediating role between time pressure and deviant innovation behavior of employees. Based on the above empirical findings, this study suggests that enterprises should firstly improve their internal leadership, and actively create challenging time pressure; secondly, enterprises should also pay close attention to the psychological dynamics of employees, enhance their positive cognition, and provide sufficient resources and platforms to provide a basis for their deviant innovation behavior; finally, enterprises should improve the protection and supervision mechanism of employees' deviant innovation behavior, to stimulate employees' willingness to innovate.

Keywords: time pressure, innovation self-efficacy, job crafting, deviant innovation behavior

1 Introduction

1.1 Background and motivation for the study

Enterprises are the main body of innovative activities, and when an organization wants to develop for a long time, continuous reform and innovation are essential. At the same time, the three-year epidemic has brought a huge blow to the world economy, therefore, the economic recovery in the post-epidemic era has become the top priority of many countries.

In the current context of rapid development of the knowledge economy, the competitiveness of enterprises comes from continuous reform and innovation. With the continuous acceleration of organizational development, employees within the enterprise naturally face multiple pressures[1].

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From a common-sense point of view, innovation is an important behavior that can actively promote the development of enterprises. As the root of enterprise innovation, when employees try to complete the tasks or work assigned by the organization, their innovative ideas will inevitably conflict with the rules and regulations of the enterprise[2]. When they report their ideas to their superiors but are not allowed to do so, employees resort to unconventional behaviors, i.e., deviant innovation behaviors (Mainemelis, 2010)[3].

Therefore, this paper will mainly explore the impact of the dimensions of time pressure on employees' deviant innovation behavior, and at the same time, innovation self-efficacy and job crafting may also have a mediating effect in this mechanism.

1.2 Content and purpose of the study

Thus, this paper proposes the following research objectives:

1. The study will explore the concepts related to challenge and hindrance stressors, employee deviant innovation behavior, innovation self-efficacy, and job crafting.

2. The study will explore the effects of challenge and hindrance stressors on innovation self-efficacy and job crafting.

3. The study will explore the effects of innovation self-efficacy and job crafting on employees' deviant innovation behavior.

4. The study will explore the mediating effect of innovation self-efficacy on challenge and hindrance stressors and employees' deviant innovation behavior.

5. The study will explore the mediating effects of job crafting on challenging and hindrance stressors and employees' deviant innovation behavior.

2 Literature review and theoretical assumptions

2.1 Literature review

1. Time pressure

Time pressure in previous studies mainly focuses on three aspects, such as work attitude, work behavior, and physical health, etc. Lepine et al. (2005) argued that challenging time stressors and hindering time stressors have positive and negative effects on job satisfaction, respectively, and empirically proved that challenging time pressure positively affects employees' work engagement and work concentration. In terms of work behavior[4], some scholars believe that time pressure has a certain degree of challenging and controllable, and employees who are motivated will therefore improve their work performance, on the contrary, if employees feel a hindrance time pressure, it will reduce their work performance (Maruping, 2015)[5]. From the perspective of team performance. In addition, Liu Xinmei et al. (2017) empirically demonstrated that challenging time pressure has a facilitating effect on team members' creativity and hindrance time pressure has an inhibiting effect on team members' creativity based on a two-dimensional time pressure model[6]. From the physiological perspective, empirical evidence has shown that prolonged exposure to time pressure makes individuals more prone to depression and affects physical and mental health (Szollos, 2009)[7].

2. Deviant innovation behavior .

In addition, some empirical studies have shown that most individuals who are prone to deviant innovation behaviors are characterized by divergent thinking, curiosity, high tolerance, self-confidence, and passion (Yang Jianzhao and Li Xiaodi, 2019)[8]. From the perspective of the organizational environment, Wang Hongyu and other scholars (2019) believe that the stronger the individual's perception of the degree of innovation support in the organizational environment, the stronger the motivation for innovation will be formed by the employee, which will make it easier for innovative behavior to occur, but subject to the constraints of a variety of factors within the organization, some of the creative ideas may not be recognized or adopted by the organization, so when the innovators within the organization are unable to achieve their own through the normal procedures within the organization, they are prone to frustration. goals, they are prone to frustration and relatively speaking, employees are more likely to have innovative transgressive behaviors[9].

3. Innovative self-efficacy

Innovation self-efficacy, as a psychological perception, was initially defined by scholars as a subjective judgment of an individual's ability to complete a job or task in a certain activity area, which does not focus on the skill itself, but only represents a kind of belief, and can be considered as a refinement of self-efficacy (Tierney, 2002)[10].

In terms of individual factors, Tierney and other scholars (2002) found that employees' education level, years of working experience, gender, values and so on will have an impact on employees' innovation self-efficacy. Regarding leadership factors, when the organizational leadership style is transformational leadership, employees are more likely to generate creative ideas to complete their work or tasks. In other words, transformational leadership behavior will directly and positively affect employees' innovative self-efficacy (Jia Mengqi, 2019)[11]. In terms of organizational factors, some scholars believe that organizational climate has a positive predictive effect on individual innovation self-efficacy, i.e., the higher the innovation climate in the organization, the more it can stimulate employees' affirmation of their innovation ability, and the contrary, it will weaken employees' affirmation of their innovation ability (Wang Hongyu, 2019)[9].

4. Job crafting

Job crafting was originally thought to be a set of positive behaviors that individuals implement to make changes in tasks, relationships, or work boundaries. Among them, task reinvention refers to the individual's increase or decrease of work tasks and the individual's active definition of the scope of task boundaries; relational reinvention refers to the fact that individuals will change the way they get along with their coworkers as well as the number and efficiency of their interactions with customers; and cognitive reinvention refers to the fact that employees will change the way they think about their work (Wrzesniewski, 2001)[12].

Previous research on job crafting can be described in terms of both antecedent and outcome dimensions. Antecedents include individual factors and organizational climate; outcomes include affective factors and work behaviors. Zhang Yue and other scholars (2021) believe that work engagement, innovative behaviors, and workplace well-being can be improved through job crafting[13].

2.2 Theoretical hypothesis

1. The relationship between time pressure and deviant innovation behavior

Zhang Guiping and other scholars (2021) believe that employees under challenging time pressure are conducive to making them think out of the box, break the routine, and solve problems creatively[14]. Zhou Haiming and other scholars (2018) believe that challenging time pressure can encourage employees to recognize and treat their work proactively, which stimulates their innovative ability to a certain extent, and enables individuals to adhere to or implement their views or solutions that they believe to be correct through the existing resources and conditions outside of work, thus stimulating the emergence of individual deviant innovation behavior[15]. Thus, this paper proposes the following hypotheses:

H1a: Positive correlation between challenging time pressure and deviant innovation behavior.

H1b: Negative correlation between hindrance time pressure and deviant innovation behavior.

2. The relationship between time pressure and innovation self-efficacy

Challenging time pressure can bring positive effects on the achievement of individual goals, so that individuals will have positive psychological attitudes, and employees will not give up lightly in the face of pressure, thus enhancing individual innovation self-efficacy; on the contrary, the negative impact of hindrance time pressure will make individuals lack of confidence, thus inhibiting the enhancement of individual innovation self-efficacy. Thus, the following hypotheses are proposed in this paper:

H2a: Positive correlation between challenging time pressure and innovation self-efficacy.

H2b: Negative correlation between hindrance time pressure and innovation self-efficacy.

3. Relationship between time pressure and job crafting

Specifically, when employees face challenging time pressure, individuals will seek ways to solve the problem by themselves, to increase their input to complete the work ; on the contrary, when employees face hindrance time pressure, individuals tend to think that the work or task has a strong impediment and is difficult to solve. As a result, such employees tend to take negative coping measures, reduce their input, or refuse to carry out job crafting to minimize the loss. Thus, the following hypothesis is proposed in this paper:

H3a: Positive correlation between challenging time pressures and job crafting.

H3b: Negative correlation between hindrance time pressure and job crafting.

4. The relationship between innovation self-efficacy and deviant innovation behavior

Employees with higher innovation self-efficacy will have stronger beliefs in accomplishing certain innovative activities while taking unknown risks. Individuals will also persist in improving their solutions and try to apply transgressive approaches to innovative activities when the organization denies some of their ideas (Ma Lu, 2021)[16]. Thus, this paper proposes the following hypothesis:

H4: There is a positive correlation between innovation self-efficacy and deviant innovation behavior.

5. Relationship between job crafting and deviant innovation behaviors

Individuals through the three dimensions of cognition, task, relationship, and other remodeling, the resources and goals they have will change, at this time, when the individual goals and the organizational system conflict, it will be more likely to produce deviant innovation behavior (Li Xiaoyuan, 2020)[17]. Thus, this paper proposes the following hypothesis:

H5: Positive correlation between job crafting and deviant innovation behavior.

6. The mediating role of innovation self-efficacy

Many studies have previously shown that employees' innovation self-efficacy has a mediating role in individual deviant innovation behavior, and this paper introduces innovation self-efficacy as a mediating variable (Fang Shumiao, 2021)[18]. When employees' innovation self-efficacy is high, individuals will not give up even if they encounter greater resistance in innovation activities, but will try to solve problems. When employees' innovation self-efficacy is low, individuals are usually more cautious and less likely to transgress innovation behaviors due to the lack of belief or courage to change. Thus, this paper proposes the following hypothesis:

H6a: Innovation self-efficacy mediates the relationship between challenging time pressure and deviant innovation behavior.

H6b: Innovation self-efficacy mediates the relationship between hindrance time pressure and deviant innovation behavior.

7. The mediating role of job crafting

When individuals face hindrance time pressure, due to the influence of certain hindrance factors, employees will reduce their work input, thus affecting the emergence of individual deviant innovation behavior. Thus, this paper proposes the following hypothesis:

H7a: Job crafting mediates the relationship between challenging time pressures and deviant innovation behavior.

H7b: Job crafting mediates the relationship between hindrance time pressure and deviant innovation behavior.

3 Research methodology

3.1 Research architecture

This paper takes time pressure as the independent variable, which is specifically divided into challenging time pressure and hindrance time pressure according to its nature; secondly, this paper also takes innovation self-efficacy and job crafting as the mediator variables, and lastly, deviant innovation behaviors are regarded as the dependent variables, to propose the research structure and model of this paper(see Figure 1).

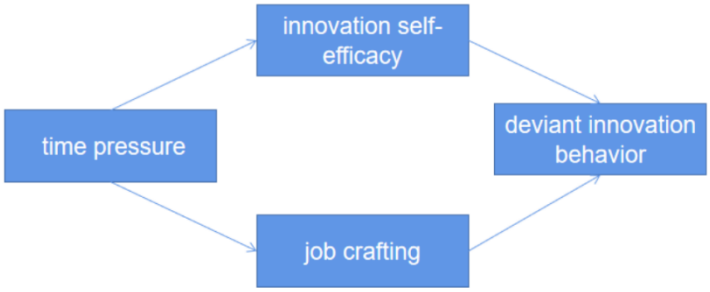

Fig. 1 Diagram of the theoretical model of this paper

3.2 Hypothesis tests

Based on the eleven hypotheses proposed above, including the positive correlation between challenging time pressure and deviant innovation behavior, this study will test the above hypotheses through data analysis methods such as regression analysis and mediation effect test, and put forward corresponding conclusions and suggestions.

3.3 Measurement techniques

1.On the dimension of time pressure: in this paper, the time pressure measurement scale developed by Op't Hoog scholars (2009) was used[19].

2.On the dimension of innovation self-efficacy: this paper adopts the innovation self-efficacy measurement scale developed by Carmeli and other scholars (2007)[20].

3.On the dimensions of job crafting: this paper adopts the job crafting Measurement Scale developed by Tims and other scholars (2012)[21].

4.On the dimension of deviant innovation behavior: this paper adopts the deviant innovation behavior Measurement Scale developed by Lin and other scholars (2016)[22].

4 Data analysis

4.1 Descriptive statistical analysis

Bentler et al. (1995) believe that the variable questions and sample size in the questionnaire should be collected at least in a ratio of 1:5[23], because this research questionnaire is composed of a number of foreign maturity scales, a total of 26 questions, so at least 130 questionnaires should be collected, after analysis and sorting, this study actually recovered 155 questionnaires, after removing invalid questionnaires, a total of 155 valid questionnaires were recovered, with an effective rate of 100%.

4.2 Reliability and validity test of scale

In the validity test, this research KMO value of the scale also reached 0.909 (>0.7), thus indicating that the validity of the scale design of this study is up to standard and has good validity.

4.3 Linear regression analysis

1. Hypothesis testing between challenge and hindrance stressor and deviant innovation behavior

The regression coefficient value of challenging time pressure is 0.443 (t=5.548, p=0.000<0.01),the value of regression coefficient of hindrance time pressure is -0.386 (t=-5.253, p=0.000<0.01) Thus, hypothesis H1b and H1a are supported.

deviant innovation behavior = 1.681 + 0.443* challenging time pressure (1)

deviant innovation behavior = 4.316-0.386* hindrance time pressure (2)

2. Hypothesis testing between challenge and hindrance stressor and innovation self-efficacy

Innovative self-efficacy = 1.567 + 0.511* challenging time pressure(3) and innovative self-efficacy = 4.719 - 0.479* hindrance time pressure(4) respectively; and F-tests were conducted on them respectively when it was found that the models all passed the F-test (F=50.747, p=0.000<0.05; F=54.583, p=0.000<0.05) Therefore, hypotheses H2a and H2b are supported.

innovative self-efficacy = 1.567 + 0.511* challenging time pressure (3)

innovative self-efficacy = 4.719 - 0.479* hindrance time pressure (4)

3. Hypothesis testing between challenge and hindrance stressors and job crafting

The F-tests of the two types of models, in turn, found that both types of models did not pass the F-tests (F=1.651, p=0.201>0.05; F=1.806, p=0.181>0.05).Therefore, hypotheses H3a and H3b cannot be supported.

job crafting = 2.954 + 0.095 * challenging time pressure (5)

job crafting = 3.542-0.090 * hindrance time pressure (6)

4. Hypothesis testing between innovation self-efficacy, job crafting, and deviant innovation behavior

F-test of the model found that the model passes the F-test (F=42.094, p=0.000<0.05), which means that at least one of the innovative self-efficacy, job reshaping will have a significant effect on deviant innovation behavior. have a significant effect.The regression coefficient value of innovation self-efficacy is 0.525 (t=7.474, p=0.000<0.01). The value of the regression coefficient of job crafting, on the other hand, is 0.293 (t=3.728, p=0.000<0.01).Thus, hypotheses H4 and H5 proposed in this study are supported.

deviant innovation behavior = 0.443 + 0.525*Innovative self-efficacy + 0.293*Job crafting (7)

4.4 Mediated effects test

In the mediation analysis of challenging time pressure as the independent variable, the 95% BootCI for the first mediator variable, innovation self-efficacy, was non-negative and non-zero (0.111 ~ 0.278); On the other hand, job crafting had a 0 (-0.023) 95% BootCI (-0.067), indicating that it did not significantly mediate the effect of challenging time pressure and deviant innovation behavior. ~ 0.067). Therefore, hypothesis H6a was supported, while hypothesis H7a was not.

In the mediation analysis of hindrance time pressure as the independent variable, the 95% BootCI for job crafting still contains 0 (-0.070 ~ 0.023). The difference is that the 95% BootCI for innovation self-efficacy under hindrance time pressure is fully negative and does not contain 0 (-0.290 ~ -0.123). Therefore, hypothesis H6b was supported, while hypothesis H7b was not.

5 Conclusions

This study investigates the relationship between time pressure of different natures, job crafting, innovation self-efficacy, and deviant innovation behavior based on social cognitive theory and social exchange theory. Firstly, this study conducted a literature review on each research dimension and, at the same time, constructed a theoretical model of the study and put forward the hypotheses; secondly, this study took the working people as the research object, used the foreign mature scale for measurement and data collection, and conducted empirical research analysis; finally, this study drew conclusions, put forward relevant suggestions for the enterprise managers and individual employees, and shortcomings in the process of the study were the study also lists the shortcomings in the research process and points out the direction for the subsequent research.

5.1 Research recommendations

1. Time pressure aspects

From the perspective of employees, individuals should try to ensure that their goals are consistent with those of their superiors. From the manager's point of view, superiors can use time pressure to create a more appropriate level of pressure and work environment, appropriate creation of challenging time pressure, to enhance the innovative vitality of the staff or organization, and to enhance the efficiency of individual work.

2. Innovative self-efficacy aspects

First of all, superior leaders should provide employees with opportunities to enhance individual innovative self-efficacy in the work process. Secondly, as employees, we should also establish a correct view of dedication, establish a sense of innovation, continuous learning, and exchange, and strive to master the professional frontier technology, proactively solve the work problems encountered in reality, and create a new situation for the enterprise. Finally, companies need to make innovative self-efficacy one of the criteria for selecting or training employees.

3. Aspects of deviant innovation behavior

Since the resources within the organization are limited, the enterprise first needs to cultivate a sense of responsibility and morality of the employees, which requires managers to communicate more with the employees, stand in the perspective of the employees to consider the problem, to understand the real demands of the employees, to avoid as far as possible the loss of talent and waste of resources under the transgression of innovation.

5.2 Research limitations and suggestions for follow-up research

First of all, the objective resources of this study are relatively limited, and most of the data collected by the questionnaire are the subjective feelings of the respondents. Due to the limited sample size collected, this study may have a slight error in the data. Second, the scales used in this study are all mature scales developed abroad, which may not necessarily fit the current Chinese context. Finally, this study did not differentiate between employees and managers and did not explore the corresponding opinions and perceptions of managers.

References

[1] Zhang Shengtai, Zhang Mengtao, Qiu Luyi, and He Weiyi (2023). The impact of endogenous and exogenous time pressure on employees' innovative behavior. Journal of Industrial Engineering and Engineering Management, 37(03), 42-50

[2] Song Kuntai, Zhang Zhengtang, and Zhao Lijing (2020). Does time pressure promote or inhibit employee innovation? - A regulated dual-path model. Science of Science and Management of Science and Technology, 41(1), 114-133.

[3] Mainemelis, C. (2010). Stealing Fire: Creative Deviance in the Evolution of New Ideas. The Academy of Management Review,35(4),558-578.

[4]Schaufeli W. B., & Taris T. W. (2014). A critical review of the job demands-resources model：Implications for improving work and health. Bridging occupational，organizational and public health. Springer Science+Business Media Dordrecht,43-68

[5]Maruping, L. M., Venkatesh, V., &Thatcher, S. M. B. (2015). Folding under pressure orrising to the occasion? Perceived time pressure and the moderating role of team temporal leadership. Academy of Management Journal,58(5),1313-1333.

[6]Liu Xinmei, Zhang Xinxing, Cui Tianheng (2017). Research on the Relationship between Time Pressure and Creativity: The Cross-level Moderating Role of Time Leadership. Research and Development Management,29(5),13-21.]

[7] Szollos, A. (2009). Toward a psychology of chronic time pressure: Conceptual and methodological review. Time & Society,18(2-3), 332-350.Studies,3(3),217-256.

[8]Yang Jianzhao and Li Xiaodi (2019). Research on the Role Path of Proactive Personality on Deviant Innovation Performance: The Mediating Role of Innovation Catalysis and the Moderating Role of Transformative Leadership Behavior. Forecast, 38(04), 17-23

[9]Wang Hongyu and Yu Jiali (2019). Research on the influence mechanism of organizational innovation atmosphere on deviant innovation behavior. Soft Science, 33(2), 126-129

[10]Tierney, P., & Farmer, S. M. (2002). Creative Self-efficacy: Its Potential Antecedents And Relationship To Creative Performance. Academy of Management Journal, (45),1137-1148.

[11]Jia Mengqi (2019). The Effect of Transformational Leadership on Employees' Innovative Self-Efficacy: The Mediating Effect of Organizational Atmosphere. Hebei Enterprise, (10), 11-13

[12]Wrzesniewski, A., &Dutton, J. E. (2001). Crafting a Job: Revisioning Employees as Active Crafters of Their Work. Academy of Management Review,26(2),179-201

[13] Zhang Yue (2021). Research on the impact of job reshaping on employees' innovation behavior in high-tech enterprises. Science and Technology and Management, 23(04), 99-108

[14]Zhang Guiping and Zhu Yuyun (2021). The Effect of Challenging Stress on Employee Creativity: Based on the Mechanism of Challenge Evaluation and Service-oriented Leadership. Soft Science, 35(07): 91-97

[15]Zhou H., Lu X.X., and Shi Kan (2018). When time pressure increases focus at work–the moderating effect of work characteristics. Nankai Management Review, 21(4), 158-168, 218
[16]Ma Lu and Ji Jianwei (2021). Can status threats in a team really "threaten" individual creativity—the role of innovation, self-efficacy, and intrinsic motivation? Science and Technology Progress and Countermeasures, 38(2), 145-152
[17]Xiaoyuan Li, Dihui Fang, and Sicong Liu (2020). Are proactive employees more likely to engage in deviant and innovative behavior? Moderating effect based on person-job matching. Journal of Financial Education Research, 33(2), 64-74
[18] Fang Shumiao, Zhao Xiaohui, and Chen Yun (2021). The Impact of Challenging Stressors on Employees' Innovative Behavior: The Dual Mediating Role of Innovative Self-efficacy and Organizational Identity. Journal of Heilongjiang Institute of Technology, 22(8), 106-112.
[19] Op't Hoog, T. (2009). Lighting up the effects of individual temporal characteristics and temporal leadership on individual NPD effectiveness. Master dissertation, Eindhoven University of Technology
[20]Carmeli, A., & Schaubroeck, J. (2007). The Influence of the Leaders' and other referents' normative expectations on individual involvement in creative work. The Leadership Quarterly,18(1),35-48.
[21]Tims, M., Bakker, A. B., &Derks, D. (2012) Development and Validation of the Job Crafting Scale. Journal of Vocational Behavior,80(1),173-186.
[22] Lin, B., Mainemelis, C., Kark, R. (2016). Leaders' Responses to Creative Deviance: Differential Effects on Subsequent Creative Deviance and Creative Performance. The Leadership Quarterly,27(4), 537-556.
[23]Bentler, P. M. (1995). EQS structural equations program manual (Vol. 6). Encino, CA: Multivariate software.