

Research on the Double-edged Sword Effect of Electronic Performance Monitoring in Workplace

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Abstract. In the digital era, in order to improve organizational performance and achieve high-quality development, more and more modern enterprises begin to use electronic performance monitoring, and the accompanying work pressure directly affects employees' role behavior. However, the existing research on electronic performance monitoring is still in the stage of its concept definition, theoretical basis and influencing factors, especially the research on the influence mechanism of electronic performance monitoring on employee role behavior is very scarce. Based on the work resource-requirement model and stress cognitive evaluation theory, this paper discusses the double-edged sword effect of two dimensions of electronic performance monitoring on employees' role behavior, and analyzes the mediating role of work stress perception and the regulating role of monitoring transparency. Through a questionnaire survey of 330 employees, a total of 308 valid questionnaires were collected. The empirical results show that: (1) Developmental electronic performance monitoring has a significant positive impact on employees' role behavior; (2) Preventive electronic performance monitoring has a significant positive impact on employees' in-role behavior and a significant negative impact on employees' out-of-role behavior. (3) Challenging pressure plays an intermediary role between developmental electronic performance monitoring and employees' in-role behavior. (4) Obstructive stress plays an intermediary role between preventive electronic performance monitoring and employee role behavior; (5) Monitoring transparency positively regulates the relationship between developmental electronic performance monitoring and challenging pressure; (6) Monitoring transparency negatively regulates the relationship between preventive electronic performance monitoring and obstructive stress. The research results verify the double-edged sword effect of electronic performance monitoring on employees' role behavior.

Keywords: Developmental electronic performance monitoring, preventive electronic performance monitoring, challenging pressure, obstructive pressure, in-role behavior, out-of-role behavior, monitoring transparency.

1. Introduction

Under different cultural and social backgrounds, the application of electronic performance monitoring has gradually become a common phenomenon, and there is an increasing trend year by year. In 2019, Gartner, a market research company, looked forward to the future of the employee monitoring market in 2020: almost 80% companies will use monitoring software to track their organizational goals and employees, while in 2018, the value is only 50%. With the development of technology, more and more companies adopt the electronic office form of home office, and each company has also improved the scope and intensity of electronic performance monitoring.

The application of electronic performance monitoring has a significant impact on employees' job satisfaction, trust, commitment, performance, stress and motivation (Kalischko et al., 2021).[1]. Electronic performance monitoring is a changing event in the working environment (Jiang et al., 2020).[2]The research shows that the effect of electronic performance monitoring on employee performance is inconsistent. In order to further explore the mechanism of electronic performance monitoring, this paper discusses the influence of developmental electronic performance monitoring and preventive electronic performance monitoring on employees from the perspective of employee perception. Role behavior is a hot research topic in recent years. Role behavior includes internal behavior and external behavior. Internal behavior is a formal behavior related to employees' job responsibilities and organizational regulations, while external behavior is a spontaneous behavior of employees to safeguard organizational interests (Organ, 1988).[3]. As two typical manifestations of

role behavior, both of them have a significant impact on organizational performance and development, especially the behavior outside the role, because the behavior beyond the role expectation is very important, which will not only affect individuals and groups, but also affect the survival of the organization (Dyne, 1995).[4] Therefore, it has the value and significance of independent research.

With more and more studies confirming the effect of electronic performance monitoring on employees, exploring the mechanism and strong and weak factors of electronic performance monitoring affecting employees' behavior, in order to help managers and organizations understand how electronic performance monitoring has become a prominent factor driving employees' behavior, and it has also become an important direction of electronic performance monitoring (Kalischko et al., 2021).[1]. Research shows that the widespread use of technology in the workplace will lead to technical pressure (Riedl et al., 2012).[5], and lead to further consequences, such as fatigue, burnout, depression and the reduction of employee job satisfaction (Ayyagari et al., 2011; Maier et al., 2015; Fischer et al., 2021)[6–8]. It is not difficult to infer that the strength and nature of job stress perception will affect employees' job satisfaction and emotional exhaustion, and make employees have related behaviors.

Some scholars have suggested that there is a strong positive correlation between monitoring transparency and employee attitude and task satisfaction. Based on the theory of workplace justice, early scholars expounded the importance of organizational integrity and transparency in influencing employees' attitudes, especially the perception of workplace fairness (Greenberg, 1987).[9]. As an important feature of electronic performance monitoring, monitoring transparency will also play a role in the process of electronic performance monitoring affecting employees' in-role behavior and out-of-role behavior. Research shows that high monitoring transparency may indirectly lead to the improvement of performance through positive emotional response and higher trust (McNall et al., 2009).[10]. Therefore, monitoring transparency may be an important boundary condition in the process of electronic performance monitoring affecting role behavior.

Due to the obvious influence on employees' psychology and work performance, electronic performance monitoring is gradually attracting the attention of academic circles, and its significance to the theoretical research and management practice of organizational behavior cannot be ignored. Job requirement-resource model and stress cognitive evaluation theory provide new ideas for the research of electronic performance monitoring. This study will explore the relationship between preventive electronic performance monitoring, developmental electronic performance monitoring, work pressure perception, monitoring transparency and employees' in-role behavior and out-of-role behavior from the perspective of employee perception, with a view to providing reference for future research.

2. Theoretical basis and research hypothesis

2.1. Analysis of the Impact of Developmental Electronic Performance Monitoring on Role Behavior

The purpose of performance monitoring of employees in traditional enterprises is generally divided into two categories: prevention and development. Among them, prevention is generally to prevent employees from being lazy and absenteeism, while development is generally to enhance employees' ability and improve performance (Cleveland et al., 1989).[11]. Based on employees' different perceptions of the developmental purpose and preventive purpose of electronic performance monitoring, researchers distinguish preventive electronic performance monitoring from developmental electronic performance monitoring accordingly. Preventive electronic performance monitoring aims at warning and deterring employees and restraining the occurrence of unfavorable behaviors to the organization; The developmental electronic performance monitoring can provide specific and meaningful performance feedback for individuals, so as to promote the learning and development of employees and improve the future performance level (Jeske et al., 2015).[12].

Previous studies have shown that employees' different perceptions of the purpose and function of electronic performance monitoring will affect their attitudes and behaviors.

The antecedents of intra-role behavior come from organizations, teams and employees. As a human resource practice, developmental electronic performance monitoring is a part of organizational environment. Research shows that the purpose of electronic performance monitoring conveys the value and expectation of the organization to employees (Wells et al., 2007).[13] That is, the perceptual purpose of the monitoring system can send similar information about status and status to employees. Developmental electronic performance monitoring will convey the message that employees deserve the investment and time needed for their development, that is, the company thinks it is necessary to promote the growth of employees. On the other hand, perceived monitoring characteristics will affect employees' perception of organizational fairness (Wells et al., 2007).[13]. Boswell and Boudreau(2000)[14] It is found that when the purpose of performance evaluation is considered to be developmental, it is positively related to the perceived procedural and distributive justice (that is, fairness).

According to the job requirement-resource model, job resources include physical, social and organizational resources from work, which are beneficial to achieving job objectives, alleviating job requirements, or stimulating personal growth, learning and development. Available job resources can stimulate employees' work motivation, thus promoting job engagement, and then leading to positive work results (such as organizational commitment and organizational performance). Developmental electronic performance monitoring can meet the work needs of employees by providing resources through the "gain" path. When employees are supplemented with good physical and psychological resources, it is beneficial to stimulate their work engagement (Bakker and Demerouti, 2008).[15], stimulate employees' behavior within the role, and urge employees to complete their job responsibilities.

The positive feedback evaluation of developmental electronic performance monitoring has been proved to be related to the improvement of organizational commitment level. The interaction between the positive and negative nature of performance feedback and the negative influence as a stable personality trait is found to be related to organizational commitment (Lam et al., 2002).[16] The level of organizational commitment of employees who receive positive feedback is significantly improved (Pearce et al., 1986)[17]. Developmental electronic performance monitoring can create a supportive organizational environment for employees, provide more developmental feedback information, make employees feel that they have the right to know in ensuring procedural and information justice, improve their understanding of organizational procedures, feel that their work resources have been enriched and improved with the support of the organization, and improve their sense of control over the work itself and the working environment, thus improving their perceived organizational justice.

According to the job requirement-resource model, the positive feedback brought by developmental electronic performance monitoring promotes the close relationship between employees and organizations and supervisors, can help employees build self-confidence in their work, and stimulate employees' enterprising work behavior and optimistic work attitude. This is a psychological resource, which can have a positive impact on employees through the "gain" path, stimulate employees' work motivation, and inspire employees to actively expand the scope of their duties and take on more responsibilities.

Based on the above analysis, hypothesis 1: Developmental electronic performance monitoring has a significant positive impact on employees' role behavior, that is, developmental electronic performance monitoring positively affects employees' in-role behavior and also positively affects employees' out-of-role behavior.

2.2. Analysis of the influence of preventive electronic performance monitoring on role behavior

Preventive electronic performance monitoring aims at warning and deterring employees and inhibiting the occurrence of unfavorable behaviors to the organization (Jeske et al., 2015).[12]. On

the one hand, preventive electronic performance monitoring conveys the information that the organization lacks trust in employees (Wells et al., 2007).[13],Alge(2004)[18]It shows that the organization's distrust of employees will lead to an increase in the use of electronic performance monitoring. For example, installing monitoring in the warehouse may convey the information that the organization suspects employees of stealing, and installing an electronic performance monitoring system in the workplace may convey the information that the organization suspects employees of not working hard and evading work. Employees may get more symbolic inferences from the perceived purpose of the monitoring system. Compared with the developmental electronic performance monitoring, employees who perceive the preventive electronic performance monitoring will feel that the organization does not trust them, the supervisor does not respect them, and their value in the organization is insignificant, and they will not be awarded more important tasks (Nebeker et al., 1993).[19]. At the same time, the perceived monitoring characteristics will affect employees' perception of organizational fairness (Wells et al., 2007).[13]. Boswell and Boudreau(2000)[14]It is found that when the purpose of performance evaluation is considered to be preventive, it is negatively related to the perceived procedural and distributive justice (that is, fairness). At this time, employees will feel that they know little about the organization and gradually lose control of the working environment.

On the other hand, because the purpose of preventive electronic performance monitoring is to alert and deter employees, the feedback it sends is mostly warning or feedback evaluation to avoid wrong behavior (Pearce et al., 1986).[17] This kind of feedback evaluation is helpful to help employees reduce mistakes in the workflow and make their work more in line with performance standards.

Preventive electronic performance monitoring creates a relatively negative and closed organizational environment for employees. Because employees can't receive more developmental feedback from superiors and organizations, employees will fall into an "information cocoon" dilemma, which makes employees feel that they have no right to know in ensuring procedural and information justice, and they basically don't understand organizational procedures. They feel that their work resources are decreasing and they lose control over the work itself and the working environment, thus the perceived organizational fairness of employees is rapidly decreasing (Boswell, 2008).[14]. And preventive electronic performance monitoring conveys the information that the organization lacks trust in employees (Wells et al., 2007).[13]Due to the interactivity of trust, when employees perceive that the organization does not trust them, they will also reduce their trust in the organization, thus the decline in satisfaction with the organization will inevitably occur (Nebeker et al., 1993).[19].

Preventive electronic performance monitoring has increased job requirements, and employees need to improve the completion standards of their own work. According to the job requirement-resource model, preventive electronic performance monitoring reduces the work resources and the employees' perception of organizational justice and trust. Individuals need good physiological and psychological resources to generate job involvement (Bakker and Demerouti, 2008).[15]. If the individual's physical and psychological resources are excessively consumed, it is difficult for him to produce a state of energy, concentration and dedication in his work, and he will not have more energy to stimulate out-of-role behaviors, such as helping behaviors.

Based on the above analysis, hypothesis 2 is put forward: Preventive electronic performance monitoring has a significant impact on employees' role behavior, in which preventive electronic performance monitoring has a significant positive impact on employees' in-role behavior and preventive electronic performance monitoring has a significant negative impact on employees' out-of-role behavior.

2.3. Analysis of the mediating role of challenging pressure between developmental electronic performance monitoring and role behavior

Work stress refers to employees' adaptive response to environmental stimuli in the process of interacting with the working environment, which will cause corresponding changes in employees' psychology, physiology or behavior. Job stress perception is a nervous and out-of-control mental state

caused by individuals' cognitive evaluation of external stimuli and their threat. Different stress perceptions have different effects on employees' role behavior.

According to the theory of stress cognitive evaluation, employees will start the cognitive evaluation process in the process of interacting with the surrounding environment. In the primary evaluation process, employees will evaluate whether the events, scenarios or problems they encounter are related to themselves, whether they are benign and positive, or whether they are stressed. If it has nothing to do with yourself, it doesn't matter to employees; If the events, situations or problems encountered are beneficial and positive, employees will make good comments, such as getting promotion opportunities; If the events, situations or problems encountered are threatening or harmful, employees will make bad comments, such as conflicts with supervisors or being fired. Developmental electronic performance monitoring is used for internal comparison of individuals, not for comparison between individuals. It usually provides constructive performance feedback about employees, identifies employees' strengths and weaknesses and training needs, and helps employees acquire skills and improve their performance. Research shows that the purpose of electronic performance monitoring conveys the value and expectation of the organization to employees (Wells et al., 2007).[13]. That is, the perceptual purpose of the monitoring system can send similar information about status and status to employees. When employees perceive the developmental electronic performance monitoring, they will receive the information from the organization to promote growth and feel that they are valued by the organization and the supervisor. And when the purpose of performance evaluation is considered to be developmental, it is positively related to perceived procedural and distributive justice (Boswell and Boudreau, 2000).[14] Developmental electronic performance monitoring can create a supportive organizational environment for employees, provide more developmental feedback information, make employees feel that they have the right to know in ensuring procedural and information justice, improve their understanding of organizational procedures, feel that their work resources have been enriched and improved with the support of the organization, and improve their sense of control over the work itself and the working environment, thus improving their perceived organizational justice. Under the dual perception of organizational trust and resource support, employees can perceive that the organization has higher requirements and expectations, but their current ability level may be different from the standard of organizational expectations. According to the theory of stress cognitive evaluation, employees will have a benign stress cognitive evaluation at this time. Although there is pressure, this pressure can bring potential growth and gains, which is a challenging pressure.

According to the primary evaluation, employees will take further measures to deal with the events, scenarios or problems they encounter, including emotional coping strategies and problem coping strategies, which will further affect employees' emotions or behaviors.

According to the job requirement-resource model, challenging stress means opportunities for growth, learning and development, which can play an incentive role and stimulate employees' sense of self-efficacy (Webster et al., 2010).[20]. When employees are in a trusted and supported environment, their mental state is relatively relaxed, so they will feel greater social happiness (Barber et al., 2014).[21] When employees feel more challenging pressure, they will feel the support and attention of the organization, and then they will build stronger self-confidence in their work, finish their work more actively and show more positive behavior in their roles. Employees supported by "development resources" have their responsibilities and responsibilities correspondingly expanded, and they are given more power to "shoulder heavy responsibilities". They feel that their abilities have been affirmed, their self-confidence has been improved, and they will have a higher level of energy to put into the practice of out-of-role behavior that is beneficial to the survival and development of the organization. In addition, after overcoming difficulties and completing challenges, employees will gain a sense of accomplishment and their self-efficacy will be significantly improved, and then they will be full of hope for the future of the organization and individuals.

Based on the above analysis, hypothesis 3 is put forward: Challenge pressure mediates between developmental electronic performance monitoring and employee's role behavior, that is, challenge

pressure mediates the influence of developmental electronic performance monitoring on employee's in-role behavior and also mediates the influence of developmental electronic performance monitoring on employee's out-of-role behavior.

2.4. Analysis of the mediating role of obstructive stress between preventive electronic performance monitoring and role behavior

Because electronic performance monitoring can be hidden and continuously monitored, employees will feel mysterious and threatening. At the same time, electronic performance monitoring may restrict employees' behavior by limiting the way employees interact with others, the way and time they move around the workplace and the information they can access, and the opportunities to participate in prosocial behavior and social communication at work may be limited (Korsgaard et al., 2010).[22]Especially in a highly monitored environment, it is more likely to increase employees' sense of workplace isolation (Mulki et al., 2013).[23]And reduce the limited social interaction (Amick, 1992)[24]Therefore, electronic performance monitoring is described as "digital Taylor doctrine", which can create a stressful working environment full of tension, dissatisfaction and low morale (Alge, 2001; Irving et al., 1986; Nebeker et al., 1993)[19,25,26].

Previous studies have shown that preventive electronic performance monitoring will lead to a decline in job satisfaction, commitment and organizational support, as well as an increase in stress and burnout (Holman et al., 2002; Wells et al., 2007)[13,27]And preventive electronic performance monitoring itself conveys the distrust information of the organization to employees, which leads to employees' dissatisfaction with the organization and reduced trust. In this environment, employees will feel that they are gradually losing access to information and falling into a situation of poor information because they rarely receive positive feedback evaluation from superiors and organizations and often receive negative feedback evaluation such as warnings. When the information resources mastered by employees can no longer meet the information resources needed for their normal work, employees' sense of control over their work will decline. According to the theory of pressure cognitive evaluation, the work environment full of tension and distrust created by preventive electronic performance monitoring is an "external stimulus", and employees "individuals" will produce pressure cognitive evaluation on this stimulus, which will not only hinder the individual's ability to play, but also hinder the improvement of individual performance, which is a hindrance pressure.

Based on the job requirement-resource model, employees classify the attribute of preventive electronic performance monitoring as "harmful". When they experience resource loss at work or feel that they can't achieve their work goals, they will have nervous and stressful reactions. The more you are in the situation of resource depletion, the more inclined individuals are to protect existing resources from further loss, and at the same time, look for opportunities to obtain new resources. At this time, the defense mechanism of individual self-protection will be triggered, and employees will first improve their internal behavior and strive to complete their own work tasks in order not to lose existing resources (jobs) and remain in the organization; Furthermore, employees will improve their own standards of completing their own jobs and strive to do their own jobs well, in order to get the attention, praise and appreciation of the organization and superiors and get new resource returns.

Obstructive stress, as a job requirement, will continuously consume employees' material, work and psychological resources (Demerouti et al., 2001).[28]. At the same time, employees are prone to frustration and self-doubt, reduce their sense of self-efficacy, and take a pessimistic attitude towards the future when faced with insurmountable obstructive pressure. Studies have pointed out that high levels of obstructive stress will lead to many negative effects, such as reducing employees' organizational citizenship behavior (Li et al., 2018).[29], making individuals anxious (Lepine et al., 2005)[30], nervous (Lin et al., 2015)[31], emotional exhaustion (Lepine et al., 2004)[32]Emotional exhaustion refers to the exhaustion of individual cognitive, emotional and physiological resources (Grant et al., 2014).[1]. Emotional exhaustion has an important impact on individual attitudes, behaviors and performance (Matta et al., 2017).[34]. The increase of obstructive stress level not only

damages the good relationship between employees and organizations, and makes them more nervous, but also reduces the self-confidence employees have established in their work, making them "passive Nuo Nuo" and afraid to "go one step further and do one more thing", so as to avoid making mistakes, which will lower the level of employees' behavior.

Based on the above analysis, hypothesis 4 is put forward: Obstructive pressure mediates between preventive electronic performance monitoring and employee's role behavior, in which obstructive pressure mediates positively between preventive electronic performance monitoring and employee's behavior within the role, and obstructive pressure mediates negatively between preventive electronic performance monitoring and employee's behavior outside the role.

2.5. Analysis of the regulatory role of monitoring transparency between developmental electronic performance and challenging pressure

Transparency refers to the extent to which employees get information and notifications about the use characteristics of electronic performance monitoring (Ravid, 2020).[35]. As we all know, when organizations give reasonable explanations to employees on the use of electronic performance monitoring, people will respond more actively to requests and interventions. Research shows that compared with monitoring without any reason, even if the reason is insufficient, the monitored person will have a greater sense of justice. (Hovorka-Mead et al., 2002)[36].

High monitoring transparency can improve employees' trust (Alder, 2006)[37], improve employees' perception of organizational justice, and make employees believe that they are in a trustworthy and just organization, and trust is negatively correlated with work pressure. Low transparency of monitoring will lead employees to think that monitoring is arbitrary or aimless, which will lead to negative work attitude (Alder, 2006).[37]. Employees who have incomplete information about electronic performance monitoring will lose their sense of control over the work itself and the working environment (Greenglass, 1993).[38].

As a part of the organizational environment that employees feel, developmental electronic performance monitoring represents the interaction between "environment" and employees "individuals". Therefore, when employees perceive that electronic performance monitoring is used to help them train and develop further, employees perceive that the social support of the organization will be strengthened. Social support is usually regarded as an important resource for individuals to cope with and adjust to stress. Social support refers to the degree of care, information and task assistance provided by individual networks in an organization. Social support can make employees feel that they are in a suitable environment and get a happy feeling from it. To further strengthen the challenging stress perception.

Developmental electronic performance monitoring helps to build a good relationship between superiors and subordinates, thus increasing employees' perceived organizational support and trust and enriching their psychological resources: when employees encounter doubts in the work process, they can get feedback in time, which is conducive to employees' understanding and work; When employees report their work progress to their superiors and seek advice and help, they can get constructive opinions and feedback from their superiors in time, which is helpful to flexibly adjust their work resources; In addition, when the superiors give constructive feedback, employees can perceive their superiors' concern for their work and their trust and support for their work, thus having a more optimistic and positive attitude.

According to the job requirement-resource model, job resources can buffer the loss of employees caused by high job requirements, and information justice brought by high monitoring transparency will further strengthen the resource intensity in the "gain" path, make employees feel supported and trusted, stimulate work motivation and strengthen the sense of challenging pressure.

Based on the above analysis, hypothesis 5 is put forward: monitoring transparency positively regulates the relationship between developmental electronic performance monitoring and challenging pressure, that is, the higher the monitoring transparency, the greater the positive impact of developmental electronic performance monitoring on challenging pressure.

2.6. Analysis of the regulatory role of monitoring transparency between preventive electronic performance and obstructive pressure

Electronic performance monitoring will aggravate the pressure and adversely affect job satisfaction (Stanton, 2002).[39]. But if employees have a say in how to supervise them to ensure the fairness of procedures and information (Stanton, 2000)[40]And understand what aspects of their work and behavior are supervised (Whiting et al., 2008).[41]Then the negative reaction of employees to preventive electronic performance monitoring will be weakened. According to the job requirement-resource model, resource support can buffer the physical and mental consumption caused by job requirements and activate the negative state of employees under pressure; On the other hand, in the situation of resource loss, it is particularly important to supplement and increase resources, which is also more valuable to individuals. It is similar to sending charcoal in the snow. The more individuals with few resources, the more important it is to inject and increase resources to relieve tension and pressure. The emotional support shown by organizational monitoring with high transparency can send a signal of respect, care and trust to employees, which can effectively stimulate employees' work enthusiasm and relieve their work pressure, that is, the obstructive pressure perception brought by preventive electronic performance monitoring is weakened.

Based on the above analysis, hypothesis 6: Monitoring transparency negatively regulates the relationship between preventive electronic performance monitoring and obstructive stress, that is, the higher the monitoring transparency, the smaller the negative impact of preventive electronic performance monitoring on obstructive stress.

Accordingly, the theoretical model as shown in Figure 1 is constructed.

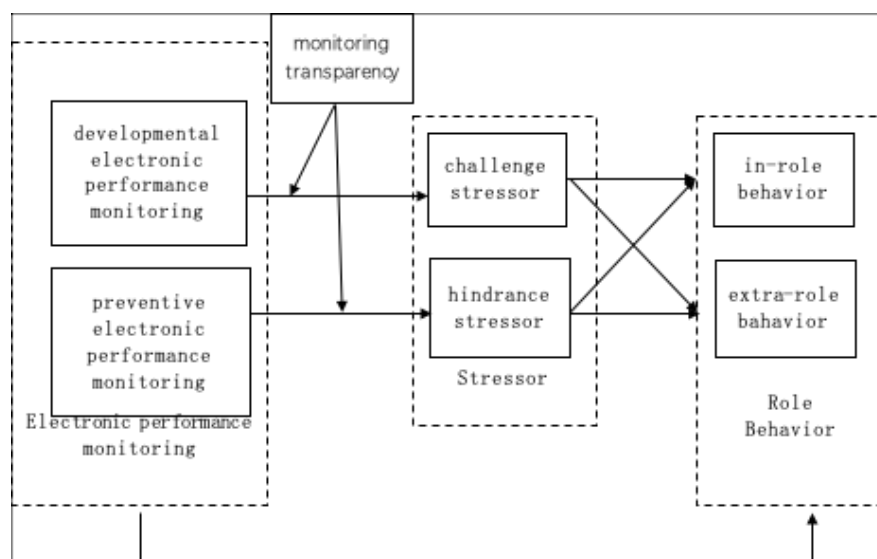


Figure 1. Theoretical model.

3. Research and design

3.1. Sample and data collection

In this study, questionnaires were collected by means of Questionnaires network platform, and questionnaires were distributed to employees of enterprises by means of random sampling and online forwarding, through alumni relations, colleagues in internship enterprises, friends and relatives forwarding and so on. In order to improve the quality of data recovery, the phenomenon that one person fills in multiple questionnaires is prevented by limiting the IP address; Secondly, it takes more than 10 minutes to set the answer time in the questionnaire; Finally, at the beginning of the questionnaire, it is explained that the survey is only used for academic research and the questionnaire is filled in anonymously, which dispels the concerns of the respondents and increases the authenticity of the answers.

This study started in September 2023 and lasted until November 2023, and was divided into two stages: pre-investigation and formal investigation. In the pre-investigation stage, 35 questionnaires were collected and some items were revised. In the formal investigation stage, 342 questionnaires were collected, of which 308 were valid, and the effective rate was 90.01%. The criteria for rejecting unqualified questionnaires in the study are as follows: (1) Choose the same option for each question; (2) The answer time should not exceed 10 minutes.

Judging from the basic situation of the sample, men account for 53.25% and women account for 46.75%, and the distribution is relatively balanced; Judging from the education level of the respondents, 36.69% of the respondents have a master's degree, accounting for the largest proportion; According to the age distribution of the respondents, there are 83 people aged 26-30, accounting for 26.95% of the total sample, and 81 people aged 31-35, accounting for 26.30%. In this study, the working years of the respondents are mostly concentrated in 2-5 years and 6-10 years, accounting for 29.87% and 29.55% respectively; Judging from the job positions of the respondents, ordinary employees accounted for the highest proportion, reaching 50.97%; According to the nature of the enterprises where the interviewees work, all kinds of enterprises are included, among which state-owned enterprises/institutions account for the most, with 120 people, accounting for 38.96%, and the interviewees belong to all walks of life, which is relatively average.

3.2. Variable measurement

The questionnaire measurement indicators in this paper include developmental electronic performance monitoring, preventive electronic performance monitoring, and challenging pressure, obstructive pressure, monitoring transparency, in-role behavior and out-of-role behavior. In order to ensure the validity of the use situation of the scale and the accuracy of the meaning of the items, two management experts and professionals were invited to review the scale. Except for the control variables, all the scales were five-point Likert-style, one representing "strongly disagree", "generally agree" and "strongly agree".

(1) Electronic performance monitoring. Wells(2007) was adopted.^[13]The developed scale consists of three items, $\alpha=0.799$.

(2) Preventive electronic performance monitoring scale. Wells(2007) was adopted.^[13]The developed scale consists of three items, $\alpha=0.824$.

(3) Monitoring transparency. Using Alder(2006) for reference and integration.^[37]The developed scale consists of three items, $\alpha=0.826$.

(4) Challenging pressure. Cavanaugh(2000) was adopted.^[42]The developed scale has 6 items in total, $\alpha=0.884$.

(5) Obstructive pressure. Cavanaugh(2000) was adopted.^[42]The developed scale has 5 items in total, $\alpha=0.868$.

(6) Behavior within the role. Williams(1991) was adopted.^[43]The developed scale has 7 items in total, $\alpha=0.892$.

(7) Behavior outside the role. Williams(1991) was adopted.^[43]The developed scale has 14 items in total, $\alpha=0.944$.

4. Data analysis and hypothesis testing

4.1. Confirmatory factor analysis

In order to test the discrimination validity among developmental electronic performance monitoring, preventive electronic performance monitoring, monitoring transparency, challenging pressure, hindering pressure, in-role behavior and out-of-role behavior, this study conducted confirmatory factor analysis on seven variables by using AMOS22.0 software, and the results are shown in Table 1. Compared with other factor models, it can be found that the seven-factor model in

this research model has the best fitting validity ($\chi^2/df=5.785$, GFI=0.892, NFI=0.888, TLI=0.991, CFI=0.991, RMSEA=0.016).

Table 1. Confirmatory Factor Analysis.

model	factor	χ^2/df	GFI	NFI	TLI	CFI	RMSEA
Seven-factor model	A, B, C, D, E, F, G	1.075	0.892	0.888	0.991	0.991	0.016
Six-factor model	A, B, C, D, E, F+G	2.519	0.678	0.736	0.808	0.821	0.07
Five-factor model	A, B, C, D+E, F+G	3.431	0.6	0.638	0.692	0.711	0.089
Four-factor model	A+B, C, D+E, F+G	3.895	0.566	0.587	0.633	0.654	0.097
Three-factor model	A+B+C, D+E, F+G	4.214	0.558	0.552	0.593	0.615	0.102
Two-factor model	A+B+C+D+E, F+G	4.593	0.54	0.51	0.545	0.568	0.108
Single factor model	A+B+C+D+E+F+G	5.785	0.425	0.382	0.394	0.424	0.125
Judgement value of each index		<2.5	>0.85	>0.85	>0.85	>0.85	<0.08

4.2 Note: A stands for developmental electronic performance monitoring, B stands for preventive electronic performance monitoring, C stands for monitoring transparency, D stands for challenging pressure, E stands for hindering pressure, F stands for in-role behavior and G stands for out-of-role behavior.

4.2. Correlation analysis

Correlation analysis is to test whether there is correlation between variables. Pearson correlation analysis of variables is very necessary before formal regression analysis. In this study, SPSS26.0 was used to analyze the correlation of each variable, and the specific results are shown in Table 2. There is a significant correlation between the main research variables. Specifically, developmental electronic performance monitoring is positively correlated with in-role behavior ($r=0.253$, $P<0.05$) and out-of-role behavior ($r=0.215$, $P<0.05$). Preventive electronic performance monitoring is positively correlated with in-role behavior ($r=0.348$, $P<0.05$) and negatively correlated with out-of-role behavior ($r=-0.176$, $P<0.05$).

Table 2. Mean and standard deviation of each variable and Pearson correlation coefficient.

	M	S D	one	2	three	four	five	six	seven	eight	nine	10	11	12	13
1 gender	1.47	0.50													
2 education level	3.27	1.06	0.011												
3 years old	3.21	1.33	-0.36	-0.05											
4 years of work	2.98	1.08	-0.71	-0.06	.010										
5 job position	1.90	1.08	-0.09	-0.32	.051	.073									
6 company nature	2.39	1.30	.017	-0.98	.022	-0.47	.284**								
7 industries	8.53	4.33	.040	-0.19	-0.086	-0.33	-0.056	-0.08							
8 Develop mental electronic performance monitorin g	3.31	0.96	.067	-0.04	-.120*	-0.49	.002	.060	.060						

9																
Preventive																
electronic	3.	1.	.01	.08	-.08	.04	.093	.03	.03	.199						
performance	13	07	6	2	8	2		8	8	**						
monitoring																
10																
Monitoring	3.	1.	.05	.06	-.02	.05	.036	.00	.00	.213	.254					
transparency	19	00	5	3	4	4		0	0	**	**					
11																
Challenging	3.	0.	-.0	.02	.04	-.0	-.00	.07	.07	.335	.269	.231				
pressure	17	89	05	9	0	13	8	7	7	**	**	**				
12																
Obstructive	3.	0.	-.0	.00	-.07	-.0	.128	-.0	-.0	-.05	.154	.022	.046			
pressure	17	92	18	3	3	32	*	05	05	4	**					
13 Intra-																
role	3.	0.	-.0	.06	-.08	-.0	.063	.01	.01	.253	.348	.144	.417	.229		
behavior	30	88	29	1	8	20		5	5	**	**	*	**	**		
14 Out-																
of-Role	2.	0.	.04	-.0	-.00	.02	-.04	.04	.04	.215	-.17	.106	.175	-.23	.0	
Behavior	64	90	2	07	5	6	0	7	7	**	6**		**	0**	90	

Note: * means $p < 0.05$, * * means $p < 0.01$. M is the mean and SD is the standard deviation. Control variables in the table: gender (1= male; 2= female), education level (1= high school and below, 2= junior college, 3= undergraduate, 4= master, 5= doctor), age (1=25 and below, 2=26-30 years old, 3=31-35 years old, 4=36-45 years old, 5 = 46. Job position (1= ordinary employees, 2= grass-roots managers, 3= middle managers, 4= senior managers), enterprise nature (1= state-owned enterprises/institutions, 2= private enterprises/private enterprises, 3= foreign-funded enterprises, 4= joint ventures, 5= others), and industry (1= agriculture, forestry, animal husbandry and fishery. 7= transportation, warehousing and postal services, 8= cultural media industry, 9= information transmission, software and information technology, 10= service industry, 11= financial industry, 12= real estate development industry, 13= tourism industry, 14= scientific research and technical service industry, 15= water conservancy, environment and public facilities management industry).

4.3. Electronic Performance Monitoring and the Main Effect Test of Role Behavior

In order to test the influence of developmental electronic performance monitoring on in-role behavior and out-of-role behavior, and the influence of preventive electronic performance monitoring on in-role behavior and out-of-role behavior, this paper uses SPSS26.0 hierarchical regression method to test.

The first step is to test the main effect relationship between developmental electronic performance monitoring and role behavior. From Model 2 in Table 3, it can be seen that after controlling the control variables such as gender and education level, the developmental electronic performance monitoring has a significant positive correlation with in-role behavior, and from Model 5, it can be seen that the developmental electronic performance monitoring has a significant positive correlation with out-of-role behavior, so hypothesis 1 is verified. The second step is to test the main effect relationship between preventive electronic performance monitoring and role behavior. From Model 3 in Table 3, it can be seen that after controlling the control variables such as gender and education level, the preventive electronic performance monitoring has a significant positive correlation with in-role

behavior, and from Model 6, it can be seen that the preventive electronic performance monitoring has a significant negative correlation with out-of-role behavior, so Hypothesis 2 is verified.

Table 3. Regression Analysis Results.

Variable name	Intra-role behavior Model 1	Intra-role behavior Model 2	Intra-role behavior Model 3	Out-of-role behavior Model 4	Out-of-role behavior Model 5	Out-of-role behavior Model 6
gender	-.030	-.045	-.039	.038	.025	.043
degree of education	.059	.063	.033	-.006	-.002	.008
age	-.085	-.056	-.057	.000	.026	-.014
working life	-.022	-.012	-.035	.034	.043	.041
Job position	.054	.049	.018	-.041	-.045	-.021
Corporate nature	.050	.052	.057	.015	.016	.012
industry	.013	.001	.000	.044	.034	.051
Developmental electronic performance monitoring		.249***			.216***	
Preventive electronic performance monitoring			.341***			-.181**
R2	.019	.079	.132	.006	.052	.038
ΔR2	.019	.079	.132	.006	.052	.038
F	.827	3.222**	5.675***	.271	2.053*	1.479

Note: * means $p < 0.05$, ** means $p < 0.01$ and *** means $p < 0.001$.

4.4. Test of Mediating Effect of Job Stress Perception

In order to test the mediating role of challenging stress between developmental electronic performance monitoring and in-role behavior. In this paper, the hierarchical regression method of SPSS26.0 is used to test the mediating effect. The first step is to test the main effect relationship between developmental electronic performance monitoring and in-role behavior. From Table 3, it can be seen that after controlling the control variables, the developmental electronic performance monitoring has a significant positive correlation with the behavior within the role; the second step is to test the mediating role of challenging stress. From Table 4, it can be seen that challenging stress is significantly positively correlated with intra-role behavior, and developmental electronic performance monitoring is significantly positively correlated with challenging stress. To sum up, available challenge pressure plays an intermediary role between developmental electronic performance monitoring and in-role behavior.

Table 4. Test of Mediating Effect of Challenging Stress between Developmental Electronic Performance Monitoring and Intra-role Behavior.

	Intra-role behavior	Challenging pressure	Intra-role behavior
gender	-0.079	-0.057	-0.058
degree of education	0.052	0.039	0.037
age	-0.037	0.061	-0.060
working life	-0.010	0.006	-0.012
Job position	0.040	-0.024	0.048
The nature of the company.	0.035	0.039	0.020
Industry to which the company belongs	0.000	0.013	-0.005
Developmental electronic performance monitoring	0.228**	0.321**	0.108*
Challenging pressure			0.373**
R2	0.079	0.129	0.205
ΔR2	0.055	0.105	0.181
variance ratio	3.222**	5.520***	8.547***

Note: * means $p < 0.05$, ** means $p < 0.01$ and *** means $p < 0.001$.

According to the bootstrap sampling principle of Process plug-in, the results of 5000 samples show that the indirect effect interval does not contain 0, and the challenging pressure plays a partial intermediary role between developmental electronic performance monitoring and in-role behavior. The results are shown in Table 5.

Table 5. Bootstrap Test of Mediating Effect of Challenge Stress between Developmental Electronic Performance Monitoring and Intra-role Behavior.

item	meaning	Effect value Effect	95%CI		Z value /t value	P value
			lower limit	upper limit		
Developmental electronic performance monitoring → challenging pressure → intra-role behavior	Indirect effect	0.120	0.083	0.185	4.612	0.000
Developmental electronic performance monitoring → intra-role behavior	Direct effect	0.108	0.008	0.207	2.114	0.035
Developmental electronic performance monitoring → intra-role behavior	Total effect	0.228	0.127	0.328	4.430	0.000

Note: * means $p < 0.05$, * * means $p < 0.01$ and * * * means $p < 0.001$.

In order to test the mediating role of challenging stress between developmental electronic performance monitoring and out-of-role behavior. In this paper, the hierarchical regression method of SPSS26.0 is used to test the mediating effect. The results are shown in Table 6.

Table 6. Test of Mediating Effect of Challenging Stress between Developmental Electronic Performance Monitoring and Out-of-Role Behavior.

	Out-of-role behavior	Challenging pressure	Out-of-role behavior
gender	0.045	-0.057	0.052
degree of education	-0.002	0.039	-0.006
age	0.017	0.061	0.010
working life	0.036	0.006	0.035
Job position	-0.038	-0.024	-0.035
The nature of the company.	0.011	0.039	0.007
Industry to which the company belongs	0.007	0.013	0.006
Developmental electronic performance monitoring	0.204**	0.321**	0.167**
Challenging pressure			0.114
R2	0.052	0.129	0.063
ΔR^2	0.027	0.105	0.035
variance ratio	2.053*	5.520***	2.231*

Note: * means $p < 0.05$, * * means $p < 0.01$ and * * * means $p < 0.001$.

According to the 5000 sampling results of bootstrap sampling principle of process plug-in, the independent variables are included in the developmental electronic performance monitoring, the intermediary variables are included in the challenging pressure, and the dependent variables are included in the out-of-role behavior. The results of mediation are as follows: According to the results, the indirect effect interval does not contain 0, and the challenging pressure plays an intermediary role between the developmental electronic performance monitoring and the out-of-role behavior. The results are shown in Table 7.

According to the test steps of causal stepwise regression method proposed by scholar Wen Zhonglin, the coefficient of developmental electronic performance monitoring to challenging stress is A, and the coefficient of challenging stress to out-of-role behavior is B, where the coefficient of B is not significant, then bootstrap test is conducted. The 95%BootCI of intermediary effect $a*b$ does

not include the number 0 (significant), and the c' of developmental electronic performance monitoring to out-of-role behavior is significant, and a*b and C' are significant. To sum up, hypothesis 3 holds.

Table 7. Bootstrap Test of Mediating Effect of Challenge Stress between Developmental Electronic Performance Monitoring and Out-of-Role Behavior.

item	meaning	Effect value Effect	95%CI		Z value /t value	P value
			lower limit	upper limit		
Developmental electronic performance monitoring → challenging pressure → out-of-role behavior	Indirect effect	0.037	0.003	0.077	1.939	0.053
Developmental Electronic Performance Monitoring → Out-of-Role Behavior	Direct effect	0.167	0.056	0.279	2.940	0.004
Developmental Electronic Performance Monitoring → Out-of-Role Behavior	Total effect	0.204	0.099	0.309	3.799	0.000

Note: * means $p < 0.05$, * * means $p < 0.01$ and * * * means $p < 0.001$.

In order to test the mediating effect of obstructive stress between preventive electronic performance monitoring and in-role behavior. In this paper, the hierarchical regression method of SPSS26.0 is used to test the mediating effect. The first step is to test the main effect relationship between preventive electronic performance monitoring and in-role behavior. From Table 8, it can be seen that after controlling the control variables, preventive electronic performance monitoring has a significant positive correlation with intra-role behavior; the second step is to test the mediating effect of obstructive stress. From Table 8, it can be seen that obstructive stress has a significant positive correlation with intra-role behavior, and preventive electronic performance monitoring has a significant positive correlation with obstructive stress. To sum up, available obstructive pressure plays an intermediary role between preventive electronic performance monitoring and in-role behavior.

According to the bootstrap sampling principle of Process plug-in, the results of 5000 samples show that the indirect effect interval does not contain 0, and the obstructive pressure plays a partial intermediary role between preventive electronic performance monitoring and in-role behavior. The results are shown in Table 9.

Table 8. Mediation Effect Test of Obstructive Stress between Preventive Electronic Performance Monitoring and Intra-role Behavior.

	Intra-role behavior	Obstructive pressure	Intra-role behavior
gender	-0.068	-0.025	-0.064
degree of education	0.027	-0.008	0.028
age	-0.038	-0.048	-0.030
working life	-0.028	-0.038	-0.022
Job position	0.014	0.094	-0.001
The nature of the company.	0.038	0.025	0.034
Industry to which the company belongs	-0.000	-0.002	0.000
Preventive electronic performance monitoring	0.280**	0.122*	0.260**
Obstructive pressure			0.163**
R2	0.132	0.045	0.160
ΔR^2	0.109	0.020	0.135
variance ratio	5.675***	1.764	6.308***

Note: * means $p < 0.05$, * * means $p < 0.01$ and * * * means $p < 0.001$.

Table 9. Bootstrap Test of Mediating Effect of Obstructive Stress between Preventive Electronic Performance Monitoring and Intra-role Behavior.

item	meaning	Effect value effect	95%CI		Z value /t value	P value
			lower limit	upper limit		
Preventive electronic performance monitoring → obstructive pressure → intra-role behavior	Indirect effect	0.020	0.002	0.050	1.610	0.107
Preventive electronic performance monitoring → intra-role behavior	Direct effect	0.260	0.172	0.347	5.818	0.000
Preventive electronic performance monitoring → intra-role behavior	Total effect	0.280	0.192	0.368	6.235	0.000

Note: * means $p < 0.05$, * * means $p < 0.01$ and * * * means $p < 0.001$.

In order to test the mediating role of obstructive stress between preventive electronic performance monitoring and out-of-role behavior. In this paper, the hierarchical regression method of SPSS26.0 is used to test the mediating effect. The first step is to test the main effect relationship between preventive electronic performance monitoring and out-of-role behavior. It can be seen from Table 10 that after controlling the control variables, preventive electronic performance monitoring has a significant negative correlation with out-of-role behavior; the second step is to test the mediating effect of obstructive stress. As shown in Table 10, obstructive stress is negatively correlated with out-of-role behavior, and preventive electronic performance monitoring is positively correlated with obstructive stress. To sum up, available obstructive pressure plays an intermediary role between preventive electronic performance monitoring and in-role behavior. Therefore, hypothesis 4 is verified.

According to the bootstrap sampling principle of Process plug-in, the results of 5000 samples show that the indirect effect interval does not contain 0, and the obstructive pressure plays a partial intermediary role between preventive electronic performance monitoring and out-of-role behavior, as shown in Table 11.

Table 10. Mediation Effect Test of Obstructive Stress between Preventive Electronic Performance Monitoring and Out-of-Role Behavior.

	Out-of-role behavior	Obstructive pressure	Out-of-role behavior
gender	0.077	-0.025	0.072
degree of education	0.007	-0.008	0.005
age	-0.010	-0.048	-0.019
working life	0.034	-0.038	0.026
Job position	-0.018	0.094	0.001
The nature of the company.	0.008	0.025	0.013
Industry to which the company belongs	0.011	-0.002	0.010
Preventive electronic performance monitoring	-0.153**	0.122*	-0.128**
Obstructive pressure			-0.203**
R ²	0.038	0.045	0.079
ΔR ²	0.012	0.020	0.052
variance ratio	1.479	1.764	2.856**

Note: * means $p < 0.05$, * * means $p < 0.01$ and * * * means $p < 0.001$.

Table 11. Bootstrap Test of Mediating Effect of Obstructive Stress between Preventive Electronic Performance Monitoring and Out-of-Role Behavior.

item	meaning	Effect value effect	95%CI		Z value /t value	P value
			lower limit	upper limit		
Preventive Electronic Performance Monitoring → Obstructive Pressure → Out-of-Role Behavior	Indirect effect	-0.025	-0.060	-0.003	- 1.660	0.097
Preventive Electronic Performance Monitoring → Out-of-Role Behavior	Direct effect	-0.128	-0.222	-0.034	- 2.657	0.008
Preventive Electronic Performance Monitoring → Out-of-Role Behavior	Total effect	-0.153	-0.248	-0.058	- 3.142	0.002

Note: * means $p < 0.05$, * * means $p < 0.01$ and * * * means $p < 0.001$.

4.5. Inspection of Regulatory Effect of Monitoring Transparency

The hierarchical linear regression of SPSS26.0 was used to test the moderating effect of monitoring transparency on the relationship between developmental electronic performance monitoring and challenging stress. After the control variables such as gender, education level, age, working years, job position and company nature are put into the first layer, the independent variables are put into the developmental electronic performance monitoring, the second layer is put into the gender, education level, age, working years, job position, company nature, developmental electronic performance monitoring and monitoring transparency, and the third layer is put into the gender, education level, age, working years, job position and company.

Table 12. Analysis of the Moderating Effect of Monitoring Transparency between Developmental Electronic Performance Monitoring and Challenging Pressure.

	Model 1	Model 2	Model 3
gender	-0.057	-0.072	-0.066
degree of education	0.039	0.030	0.029
age	0.061	0.060	0.067
working life	0.006	-0.003	-0.002
Job position	-0.024	-0.029	-0.030
The nature of the company.	0.039	0.041	0.042
Industry to which the company belongs	0.013	0.014	0.014
Developmental electronic performance monitoring	0.321**	0.287**	0.295**
Monitoring transparency		0.152**	0.138**
Developmental electronic performance monitoring * monitoring transparency			0.145**
R2	0.129	0.156	0.178
variance ratio	5.520***	6.115***	6.434***
ΔR2	0.129	0.027	0.022

Note: * means $p < 0.05$, * * means $p < 0.01$ and * * * means $p < 0.001$.

From Table 12, it can be seen that the interaction between developmental electronic performance monitoring and monitoring transparency is significant for challenging pressure. It means that when the developmental electronic performance monitoring affects the challenging pressure, the influence range is significantly different at different levels of monitoring transparency. The higher the transparency of monitoring, the greater the positive impact of developmental electronic performance monitoring on challenging pressure. Therefore, hypothesis 5 is verified.

In order to verify the mediated effect, Process was inserted into SPSS26.0 for bootstrap test, and the sample was randomly selected for 5000 times with a confidence level of 95%. The results are shown in Table 13.

Table 13. Test on the Moderating Effect of Monitoring Transparency between Developmental Electronic Performance Monitoring and Challenging Pressure.

dependent variable	regulated variable	Regulating variable level	coefficient of regression	standard error	t	p	95%CI	
Challenging pressure	Monitoring transparency	average value	0.295	0.051	5.800	0.000	0.195	0.394
		High level (+1SD)	0.439	0.074	5.950	0.000	0.294	0.584
		Low level (-1SD)	0.150	0.070	2.142	0.033	0.013	0.288

In order to reflect the regulatory effect of monitoring transparency more intuitively, this paper draws the regulatory effect diagram of monitoring transparency on the relationship between developmental electronic performance monitoring and challenging stress at different levels at a standard deviation level above and below the average, as shown in Figure 2. When the monitoring transparency is high, the influence of the developmental electronic performance monitoring on the challenging pressure becomes stronger, and when the monitoring transparency is low, the influence of the developmental electronic performance monitoring on the challenging pressure becomes weaker. Hypothesis 5 is verified again.

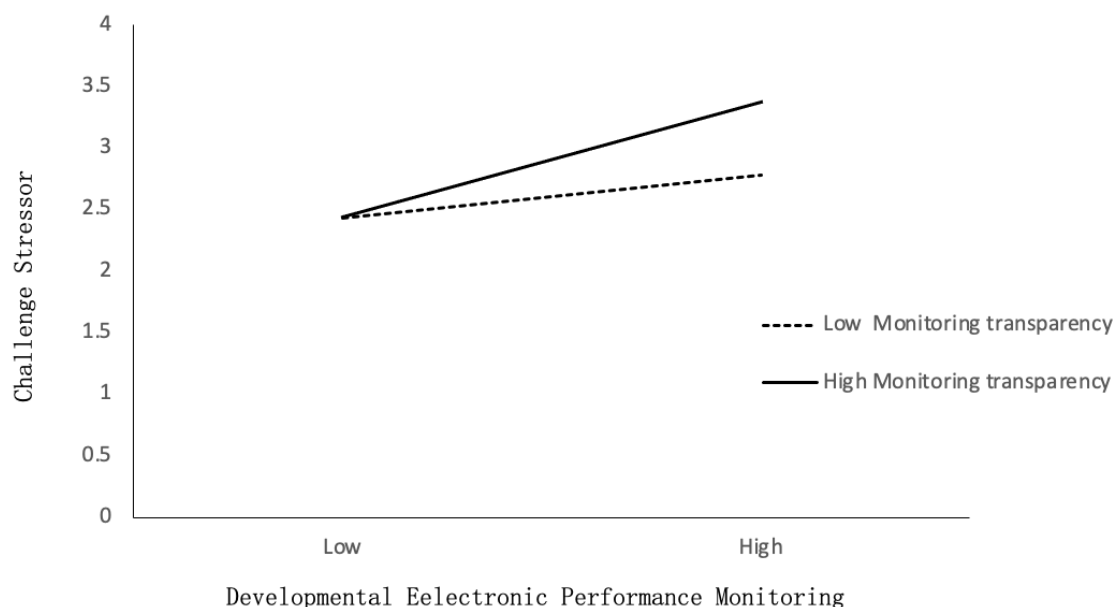


Figure 2. Regulatory Effect of Monitoring Transparency on Developmental Electronic Performance Monitoring and Challenging Stress.

The hierarchical linear regression of SPSS26.0 was used to test the moderating effect of monitoring transparency on the relationship between preventive electronic performance monitoring and obstructive stress. In the first layer, control variables such as gender, education level, age, working years, job position and company nature are put into the independent variables, in the second layer, gender, education level, age, working years, job position, company nature, preventive electronic performance monitoring and monitoring transparency are put into the third layer, and in the third layer, gender, education level, age, working years, job position and company are put into it.

Table 14. Analysis of the Moderating Effect of Monitoring Transparency between Preventive Electronic Performance Monitoring and Obstructive Stress.

	Model 1	Model 2	Model 3
gender	-0.025	-0.024	-0.031
degree of education	-0.008	-0.007	0.006
age	-0.048	-0.048	-0.058
working life	-0.038	-0.038	-0.034
Job position	0.094	0.094	0.082
The nature of the company.	0.025	0.025	0.020
Industry to which the company belongs	-0.002	-0.002	0.006
Preventive electronic performance monitoring	0.122*	0.126*	0.142**
Monitoring transparency		-0.015	-0.030
Preventive electronic performance monitoring * Monitoring transparency			-0.266**
R2	0.045	0.045	0.129
Adjust R2	0.020	0.016	0.100
variance ratio	1.764	1.572	4.392***
ΔR^2	0.045	0.000	0.084
ΔF value	1.764	0.078	28.469***

Note: * means $p < 0.05$, ** means $p < 0.01$ and *** means $p < 0.001$.

As can be seen from Table 14, the interaction between preventive electronic performance monitoring and monitoring transparency is significant for obstructive stress. It means that when preventive electronic performance monitoring affects obstructive stress, the influence range is significantly different at different levels of monitoring transparency. The higher the transparency of monitoring, the smaller the negative impact of preventive electronic performance monitoring on obstructive stress. Therefore, hypothesis 6 is verified.

In order to verify the mediated effect, Process was inserted into SPSS26.0 for bootstrap test, and the sample was randomly selected for 5000 times with a confidence level of 95%. The results are shown in Table 15.

Table 15. Test on the Moderating Effect of Monitoring Transparency between Preventive Electronic Performance Monitoring and Obstructive Stress.

dependent variable	regulated variable	Regulating variable level	coefficient of regression	standard error	t	p	95%CI	
		average value	0.142	0.049	2.891	0.004	0.046	0.238
Obstructive pressure	Monitoring transparency	High level (+1SD)	-0.123	0.068	-1.817	0.070	-0.255	0.010
		Low level (-1SD)	0.407	0.072	5.656	0.000	0.266	0.548

In order to reflect the regulatory effect of monitoring transparency more intuitively, this paper draws the regulatory effect diagram of monitoring transparency on the relationship between preventive electronic performance monitoring and obstructive stress at different levels at a standard deviation level above and below the average, as shown in Figure 3. When the monitoring transparency is high, the negative impact of preventive electronic performance monitoring on obstructive stress becomes weak, and when the monitoring transparency is low, the impact of preventive electronic performance monitoring on obstructive stress becomes strong, and hypothesis 6 is verified again.

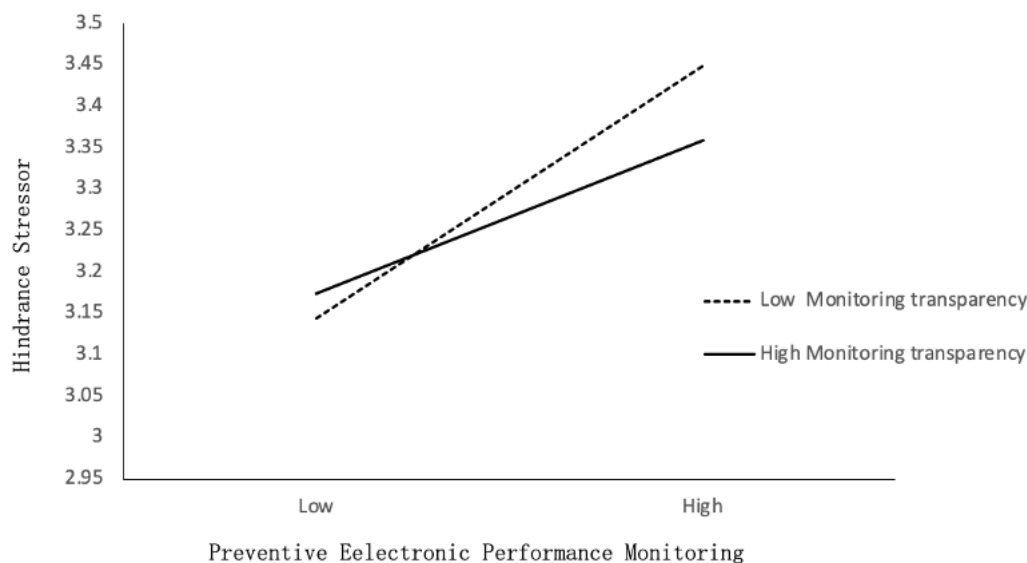


Figure 3. Regulatory Effect of Monitoring Transparency on Preventive Electronic Performance Monitoring and Challenging Stress.

5. Research conclusion and discussion

5.1. Research conclusion

Based on the data analysis of small and medium-sized enterprises in the Yangtze River Delta region, this paper discusses the mechanism and boundary conditions of electronic performance monitoring on role behavior under the transparency of monitoring, and draws the following conclusions: First, developmental electronic performance has a positive impact on in-role behavior and out-of-role behavior. Secondly, challenging pressure plays an intermediary role between developmental electronic performance monitoring and role behavior, while hindering pressure plays an intermediary role between preventive electronic performance monitoring and role behavior. Finally, monitoring transparency positively regulates the relationship between developmental performance monitoring and challenging pressure, and negatively regulates the relationship between preventive electronic performance monitoring and obstructive pressure.

5.2. Theoretical significance

Firstly, by discussing the correlation between the two dimensions of electronic performance monitoring and employee's role behavior, this paper expands the research on the influence effect of electronic performance monitoring. Because of the difference between the two dimensions of developmental electronic performance monitoring and preventive electronic performance monitoring in electronic performance monitoring, this paper holds that the different dimensions of electronic performance monitoring have different action mechanisms on employee's role behavior, but the existing research has not conducted in-depth research on the relationship between them. This paper tries to expand the research network of electronic performance monitoring by identifying the results of electronic performance monitoring.

Secondly, combined with the job requirement-resource model and stress cognitive evaluation theory, this study explores the possible internal mechanism of electronic performance monitoring affecting employee behavior. The traditional research on electronic performance monitoring does not treat it in two, which leads to the complex influence of electronic performance monitoring on the result variables, both positive and negative. Job stress perception is the key psychological mechanism in the relationship between electronic performance monitoring and role behavior. There are positive

and negative pressures. Correctly distinguishing the different stressors brought by electronic performance monitoring provides a certain reference for fully understanding the influence of electronic performance monitoring on work behavior.

Thirdly, by studying the regulatory role of monitoring transparency, this study explores the boundary conditions of the influence of electronic performance monitoring, thus providing a direction for more accurately understanding the double-edged sword effect of electronic performance monitoring. This paper tries to understand how electronic performance monitoring can play a better role and become a driving force for employees' role behavior. The transparency of monitoring provides a possible explanation and mechanism. Most of the previous studies on electronic performance monitoring did not consider the boundary condition of monitoring characteristics, and employees were in a certain organizational environment. This study discusses how different dimensions of electronic performance monitoring will affect different dimensions of role behavior under different levels of monitoring transparency.

5.3. Management Enlightenment

First, enterprises should carefully use electronic performance monitoring. The way and degree of implementing electronic performance monitoring for employees need careful consideration. Enterprises should combine their own culture, situation, organizational structure and other comprehensive analysis, while considering the safety and transparency of electronic performance monitoring and other important factors, pay attention to different influences. Compared with developmental electronic performance monitoring, the application of preventive electronic performance monitoring will reduce the level of employees' out-of-role behavior to a certain extent. Therefore, when using electronic performance monitoring, managers should skillfully grasp the balance between developmental electronic performance monitoring and preventive electronic performance monitoring, and try their best to ensure that the expected positive results brought by electronic performance monitoring outweigh the potential negative results. Enterprises can also learn from the monitoring and management mode of advanced enterprises and make appropriate adjustments in combination with their own enterprise characteristics.

Second, enterprises can provide help for employees to balance and adjust their own pressure. First of all, enterprises can increase employees' control over electronic performance monitoring. When employees are given control over the methods, time and degree of monitoring and performance feedback, employees will generally make a more positive response to electronic performance monitoring and reduce their psychological pressure. Secondly, enterprises should pay attention to the physical and mental stress of employees and take appropriate measures to relieve the stress. For example, improve the relationship between employees and superiors, create a harmonious and friendly organizational atmosphere, increase employees' sense of organizational support, and give employees emotional support and resource support. Communicate with employees in time when they are aware of negative emotions, optimize task design and organizational culture, so as to weaken the obstructive pressure brought by preventive electronic performance monitoring and strengthen the challenging pressure brought by developmental electronic performance monitoring.

Third, enterprises should fully explain the application process of electronic performance monitoring to employees, improve the transparency of monitoring, help employees understand the reasonable scope of electronic performance monitoring, and reduce their worries and resistance to electronic performance monitoring. For example, enterprises can explain to employees the application purpose of electronic performance monitoring, the scope, time and place of monitoring information collection, and how the collected data can be applied to performance evaluation. Fully protect employees' right to know, create an organizational environment with fair procedures and atmosphere, strengthen employees' positive cognitive response, and reduce employees' psychological pressure burden.

5.4. Research Deficiencies and Prospects

First of all, this paper verifies the independent effects of developmental electronic performance monitoring and preventive electronic performance monitoring on in-role behavior and out-of-role behavior. However, in the real work environment, developmental electronic performance monitoring and preventive electronic performance monitoring coexist and may interact with each other. In the follow-up study, we can combine developmental electronic performance monitoring and preventive electronic performance monitoring to study the interaction between them and role behavior.

Secondly, because the influence of electronic performance monitoring on employees' role behavior is a dynamic and long-term process, and the data collection in this study did not consider taking multi-time survey methods, longitudinal technology can be used to explore the long-term influence of electronic performance monitoring on employees' role behavior in the follow-up study.

Finally, in the process of discussing the influence of electronic performance monitoring on employees' perception of work stress, only the influence of monitoring transparency in the working environment is considered, but the factors of organizational and personal characteristics are not paid attention to. In the future research, variables of organizational level or personal characteristics can be introduced to clarify the internal mechanism between electronic performance monitoring and employees' role behavior from multiple levels and angles through empirical analysis.

References

- [1] Kalischko T, Riedl R. Electronic Performance Monitoring in the Digital Workplace: Conceptualization, Review of Effects and Moderators, and Future Research Opportunities [J]. *Frontiers in Psychology*, 2021, 12: 224-209.
- [2] Jiang H, Tsohou A, Siponen M, et al. Examining the side effects of organizational Internet monitoring on employees[J]. *Internet Research: Electronic Networking Applications and Policy*, 2020.
- [3] Organ D W. Organizational citizenship behavior: The good soldier syndrome [M]. Lexingtonbooks/DC heath and com, 1988.
- [4] Van Dyne L, Cummings L L, Parks J M. Extra-role behaviors-in pursuit of construct and definitional clarity (a bridge over muddied waters [J]. *Research in Organizational Behavior*, 1995, 17: 215-285.
- [5] Riedl R, Kindermann H, Auinger A, et al. Technostress from a Neurobiological Perspective [J]. *Business & Information Systems Engineering*, 2012, 4(2): 61-69.
- [6] Fischer T, Reuter M, Riedl R. The Digital Stressors Scale: Development and Validation of a New Survey Instrument to Measure Digital Stress Perceptions in the Workplace Context [J]. *Frontiers in Psychology*, 2021, 12: 607598.
- [7] Ayyagari R, Grover V, Purvis R. Technostress: Technological Antecedents and Implications. [J]. *Mis Quarterly*, 2011, 35(4): 831-858.
- [8] Maier C, Laumer S, Eckhardt A. Information technology as daily stressor: pinning down the causes of burnout [J]. *Journal of Business Economics*, 2015, 85(4): 349-387.
- [9] Jerald Greenberg. A Taxonomy of Organizational Justice Theories [J]. *Academy of Management Review*, 1987, 12(1): 9-22.
- [10] McNall L A, Roch S G. A Social Exchange Model of Employee Reactions to Electronic Performance Monitoring [J]. *Human Performance*, 2009, 22(3): 204-224.
- [11] Cleveland J N, Murphy K R, Williams R E. Multiple Uses of Performance Appraisal: Prevalence and Correlates [J]. *Journal of Applied Psychology*, 1989, 74(1): 130-135.
- [12] Jeske D, Santuzzi A M. Monitoring what and how: psychological implications of electronic performance monitoring: Electronic performance monitoring of employees [J]. *New Technology, Work and Employment*, 2015, 30(1): 62-78.
- [13] Wells D L, Moorman R H, Werner J M. The impact of the perceived purpose of electronic performance monitoring on an array of attitudinal variables [J]. *Human Resource Development Quarterly*, 2007, 18(1): 121-138.

- [14] Boswell W R, Boudreau J W. Employee satisfaction with performance appraisals and appraisers: The role of perceived appraisal use [J]. *Human Resource Development Quarterly*, 2000, 11(3): 283-299.
- [15] Bakker A B, Demerouti E. Towards a model of work engagement [J]. *Career Development International: The Journal for Executives, Consultants and Academics*, 2008, 13(3): 209-223.
- [16] Lam S S K, Yik M S M, and Schaubroeck J. Responses to formal performance appraisal feedback: the role of negative affectivity [J]. *The Journal of Applied Psychology*, 2002, 87(1): 192-201.
- [17] Pearce J L, Porter L W. Employee Responses to Formal Performance Appraisal Feedback [J]. *Journal of Applied Psychology*, 1986, 71(2): 211-218.
- [18] Alge B J, Ballinger G A, Green S G. Remote control: Predictors of electronic monitoring intensity and secrecy [J]. *Blackwell Publishing Ltd*, 2004, 57(2): 377-410.
- [19] Nebeker D M, Tatum B C. The Effects of Computer Monitoring, Standards, and Rewards on Work Performance, Job Satisfaction, and Stress [J]. *Journal of Applied Social Psychology*, 1993, 23(7): 508-536.
- [20] Webster J R, Beehr T A, Christiansen N D. Toward a better understanding of the effects of hindrance and challenge stressors on work behavior[J]. *Journal of Vocational Behavior*, 2010, 76(1): 68-77.
- [21] Barber L K, Rupprecht E A, Munz D C. Sleep Habits May Undermine Well-Being Through the Stressor Appraisal Process[J]. *Journal of Happiness Studies*, 2014, 15(2): 285-299.
- [22] Korsgaard M A, Meglino B M, Lester S W, et al. paying you back or paying me forward: Understanding rewarded and unrewarded organizational citizenship behavior [J]. *Journal of Applied Psychology*, 2010, 95(2): 277-290.
- [23] Jay Prakash Mulki, William B. Locander, Greg W. Marshall, et al. Workplace Isolation, Salesperson Commitment, and Job Performance [J]. *Journal of Personal Selling & Sales Management*, 2013, 28(1): 67-78.
- [24] Amick B C, Smith M J. Stress, and computer-based work monitoring and measurement systems: a conceptual overview [J]. *Applied Ergonomics*, 1992, 23(1): 6-16.
- [25] Alge B J. Effects of computer surveillance on perceptions of privacy and procedural justice [J]. *Journal of Applied Psychology*, 2001, 86(4): 797-804.
- [26] Irving, R. H., Higgins, C. A., Safayeni, F. R. Computerized performance monitoring systems: Use and abuse[C]//*Communications of the ACM: Vol 29*. 1986: 794-801.
- [27] Holman D, Chissick C, Totterdell P. The Effects of Performance Monitoring on Emotional Labor and Well-Being in Call Centers [J]. *Motivation and Emotion*, 2002, 26(1): 57-81.
- [28] Demerouti. E, Bakker A B, Nachreiner. F, et al. The job demands-resources model of burnout [J]. *The Journal of applied psychology*, 2001, 86(3): 499-512.
- [29] Li M, Ye H, Zhang G. How Employees React to a Narcissistic Leader? The Role of Work Stress in Relationship between Perceived Leader Narcissism and Employees' Organizational Citizenship Behaviors to Supervisor [J]. *International Journal of Mental Health Promotion*, 2018, 20(3): 83-97.
- [30] Lepine J A, Podsakoff N P, Lepine M A. A Meta-Analytic Test of the Challenge Stressor–Hindrance Stressor Framework: An Explanation for Inconsistent Relationships among Stressors and Performance [J]. *Academy of Management Journal*, 2005, 48(5): 764-775.
- [31] Lin W, Ma J, Lei W, et al. A Double-Edged Sword: The Moderating Role of Conscientiousness in the Relationships between Work Stressors, Psychological Strain, and Job Performance [J]. *Social Science Electronic Publishing*, 2015, 36(1): 94-111.
- [32] LePine J A, LePine M A, Jackson C L. Challenge and Hindrance Stress: Relationships with Exhaustion, Motivation to Learn, and Learning Performance. [J]. *Journal of Applied Psychology*, 2004, 89(5): 883-891.
- [33] Grant A M, Berg J M, Cable D M. Job Titles as Identity Badges: How Self-Reflective Titles Can Reduce Emotional Exhaustion [J]. *Academy of Management*, 2014, 57(4): 1201-1225.
- [34] Matta, Fadel K, SCOTT, et al. Is consistently unfair better than sporadically fair? An investigation of justice variability and stress [J]. *Academy of Management Journal*, 2017, 60(2).
- [35] Ravid D M, Tomczak D L, White J C, et al. EPM 20/20: A Review, Framework, and Research Agenda for Electronic Performance Monitoring [J]. *Journal of Management*, 2020, 46(1): 100-126.

- [36] Hovorka-Mead, A. D., Ross JR, W. H., Whipple, T., et al. watching the detectives: Seasonal student employee reactions to electronic monitoring with and without advance notification [J]. *Personnel Psychology*, 2002, 55(2): 329-362.
- [37] Alder, G. S.; Ambrose, M. L.; Noel, T. W. The Effect of Formal Advance Notice and Justification on Internet Monitoring Fairness: Much about Nothing? [J]. *Journal of Leadership Organizational Studies*, 2006, 13(1): 93-108.
- [38] Greenglass E R. The Contribution of Social Support to Coping Strategies [J]. *Applied Psychology*, 1993, 42(4): 323-340.
- [39] Stanton J M, Julian A L. The impact of electronic monitoring on quality and quantity of performance [J]. *Computers in Human Behavior*, 2002, 18(1): 85-101.
- [40] Stanton J M. Reactions to Employee Performance Monitoring: Framework, Review, and Research Directions [J]. *Human Performance*, 2000, 13(1): 85-113.
- [41] Whiting W, Podsakoff P M, Whiting J, et al. The effects of task performance, helping, voice, and organizational loyalty on performance appraisal ratings [J]. *Journal of Applied Psychology*, 2008, 93(1).
- [42] Cavanaugh M A, Boswell W R, Roehling M V, et al. An Empirical Examination of Self-Reported Work Stress among U.S. Managers [J]. *Journal of Applied Psychology*, 2000, 85(1): 65-74.
- [43] Williams L J, Anderson S E. Job Satisfaction and Organizational Commitment as Predictors of Organizational Citizenship Behavior and In-Role Behavior [J]. *Journal of Management*, 1991, 17(3): 601-617.