

A Review of Research on the Effects of Employee Workplace Micro-breaks on Job Performance

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Abstract. Although long hours and high work intensity ensure work progress to a certain extent, they tend to cause physical and mental fatigue, which ultimately affects work performance. Studies have shown that appropriate breaks between work can restore physical fitness, concentration and other bodily functions to maintain good working conditions. However, there are many organizational managers who believe that such micro-break activities are counterproductive, slowing down work progress and ultimately affecting productivity. Based on these two different attitudes, this paper decided to collect and summarize the recent literature on workplace micro-breaks and employee performance to investigate whether and through which pathways micro-breaks can improve employee performance.

Keywords: Workplace micro-breaks, Job performance, Emotional mechanism, Recovery mechanism, Cognitive input.

1. Introduction

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2. Organization of the Text

2.1. Workplace Micro-break

2.1.1. The concept of workplace micro-break.

The term "micro-break" was first used by Henning et al. to describe a short, autonomous, unofficial break between jobs, but the concept of a micro-break was not clearly defined at that time. Inheriting the term micro-break, McLean et al. defined it as an official, pre-planned break for employees, which is taken by the company to avoid the accumulation of physiological trauma due to continuous work. Nowadays, the rapid development of Internet technology, the continuous upgrading of work hardware facilities and the general improvement of employees' education level have made the unstructured character of work more and more obvious, and employees' own initiative and motivation for completing work is playing an increasingly important role, and the concept of inter-work micro-breaks has changed somewhat accordingly. Kim et al. regarded inter-work micro-first breaks as employees as a spontaneous and conscious behavior of employees, i.e., an unofficial rest activity initiated by employees themselves between carrying out their work, which is short-term and not related to work matters. Domestic scholar Nie Qi et al. integrated the views of different scholars and

defined inter-work micro-breaks as an energy management strategy in the workplace that lasts for a short period of time and is not related to the completion of work requirements, while both those planned in advance by the company (e.g., inter-work exercises, afternoon tea, etc.) and activities carried out by employees consciously and spontaneously (e.g., stretching activities, browsing the web) are included in it.

As shown in the table, by combing the literature, it can be found that scholars' definitions of workplace micro-breaks include the characteristics of being during work, short and not related to work tasks, but in terms of form, some scholars identify employees' spontaneous informal behaviors as workplace micro-breaks, some scholars identify such activities within organizational plans as workplace micro-breaks, and some scholars consider both as workplace micro-breaks.

2.1.2. Research related to workplace micro-breaks.

Through literature combing, scholars found that the research on workplace micro-breaks mainly focused on their impact outcomes, and the outcome variables were mainly divided into three categories: physical and mental resources, job performance and work attitude.

In terms of physical and mental resources, workplace micro-breaks can have an impact on the recovery process of employees' physiological resources and can play a positive role in improving the physical health of individuals. Some research have been showed that guided physical exercise activities, stretching activities were helpful in reducing pain in the neck, shoulder, back and other body parts after surgery. Vijendren et al. found that for shoulder and neck pain caused by prolonged work, specific inter-work micro-break activities can have a delaying effect. Dababneh et al. argued that in terms of improving employees' physical discomfort, it is more effective to conduct a small number of micro-breaks but for a longer duration each time than to conduct a large number of micro-breaks of a shorter duration each time. In addition to improving physical health, research has also shown that workplace micro-breaks also have positive and negative effects on employees' mental health. The positive effects are mainly in terms of employees' emotions and individual experiences. Scholz et al. noted that social and relaxation-based workplace micro-breaks helped employees to enhance positive emotions and reduce negative emotions. Hunter and Wu noted that workplace micro-breaks positively affected individuals' energy, motivation, and attention recovery levels and that, compared to workplace micro-break activities performed during the upcoming off-hours, workplace micro-break activities performed in the pre-work period Their recovery effects were better. Bennett found that some relaxation activities gave employees the opportunity to relax their minds and bodies, which led to an increased level of psychological disengagement and relaxation experience. And the longer the inter-work micro-breaks are carried out, the better it is for employees to preserve more resources and thus reduce fatigue. The negative effects are mainly manifested in the fact that certain types of workplace micro-breaks can cause employees to feel negative emotions. Baumeister et al. argued that even when performing recreational-cognitive activities, individuals need to expend some of their own resources, and the overall amount of individual resources is affected in this process, specifically, it may cause negative emotions such as anxiety and anxiety. Kim et al. also noted that, on the one hand, recreational cognitive-type activities increase the positive emotions of individuals, and on the other hand, it can make the negative effects of work demands on employees more pronounced. In addition, Fritz et al. pointed out that among the specific activities of inter-work micro-breaks, the specific activity of drinking coffee, while helping employees to stay active, may have negative effects such as sleep disturbance in the long run.

In terms of job performance, the findings show that most of the inter-work micro-break activities taken by employees can have a catalytic effect on their job performance. Trougakos et al. showed that employees' use of workday breaks has a real impact on how they feel and perform at work. Kim et al. showed that there was a correlation between the frequency of social, relaxation, and recreational-cognitive activities performed by employees and their job performance, while the intake of nutritional activities did not have an impact on their job performance. In addition to the types of workplace micro-breaks, scholars have explored the relationship between different duration and frequency and job performance. Lim et al. concluded that the longer the duration of workplace micro-break activities,

the higher the post-break task performance of employees. Kim et al. held a different view on the relationship between the duration of the workplace micro-break activity performed and the subsequent task performance of the employees, arguing that although the task performance of the employees increases along with the increase in the duration of the workplace micro-break activity, there exists a certain optimal duration, when the task performance of the employees takes a maximum value, and thereafter, when the duration continues to increase, the task performance of the employees decreases rather than increases. Berman et al. found that a high frequency of workplace micro-breaks promotes individual productivity and sales performance.

In terms of work status, the effects involved in workplace micro-breaks include intrinsic motivation, work engagement, and job satisfaction. Sonnentag et al. found that workplace micro-breaks played a role in helping employees find pleasure in their work, and that employees perceive work as a source of pleasure thus increasing their intrinsic motivation and work engagement levels. Rzeszotarski et al. found that a moderate amount of workplace micro-breaks can reduce the risk of employee distraction and thus increase their work engagement. Hunter and Wu showed that performing workplace micro-break activities that employees personally prefer increases their job satisfaction.

2.2. Job Performance

2.2.1. The concept of job performance.

Employee performance has always been the focus of attention in the field of human resource management, and despite the fruitful research results, there has been no unanimous opinion on the connotation and definition of employee performance. Previous scholars have presented three different types of views around the core content of employee performance: the outcome view, the behavioral view, and the comprehensive view.

(1) The outcome-based view of employee performance.

The outcome-based view of employee performance focuses on the work outcomes achieved by employees within a certain work cycle and examines the completion of a job or task, which is expressed as output, outcome, or achievement. However, there are problems with the outcome-based view of employee performance. Employee performance is multi-causal and can be influenced by many factors from others and the environment. A single focus on the final output may erase the level of effort and process of employees and cause misjudgment, thus discouraging employees' enthusiasm and commitment to their work. At the same time, a single focus on the results will also make employees more short-sighted behavior, which may have a negative impact on the enterprise and hurt the long-term strategic development of the enterprise.

(2) The behavioral view of employee performance.

The behavioral view emphasizes that employee job performance is a behavior or behavioral process, and examines the behavioral performance that can be observed in the process of completing a job or task. This view is currently the more popular definition of the connotation of employee performance. It is important to note that the behavioral view emphasizes behavior and behavioral processes, but it does not mean that outputs or outcomes have no meaning in the connotation of job performance. Some scholars argue that employee job performance is a set of behaviors that are highly linked to the organizational goals for which the organization or individual works. This view suggests on the one hand that employee performance is essentially embodied in behavior, and on the other hand elaborates on the characteristic that employee performance is highly correlated with organizational strategy, and that this behavior has a positive value for organizational development and goal achievement over a certain period of time. However, the behavioral view of employee performance connotation also faces some problems. Not all organization-related behaviors of employees can be included in the scope of job performance, while the measurability and observability of behaviors included in job performance vary widely and certain behaviors are difficult to measure. As a result, scholars have proposed a comprehensive definition of employee performance that combines multiple dimensions of outcomes, behaviors, and competencies.

(3) The comprehensive view of employee performance.

The comprehensive view of employee performance has a broader connotation, considering employee qualities, behavioral processes, and outcome outputs as complementary systems, with attitudes, motivation, competencies, learning and innovation also included within the definition of employee performance. Employee quality is the inherent and stable competence characteristics of employees, which are the intrinsic attributes of competent work: behavior is the actions that employees take to achieve tasks and goals based on their competence; and results are the actual contributions that employees make to job tasks and organizational goals. The comprehensive view of employee performance definition enriches the content of employee performance and can better explain the actual phenomenon, and the loose definition is more widely accepted.

2.2.2. Factors influencing job performance.

When conducting the literature review, we learned that scholars identified individual factors as the main influencing factor of job performance in the early stage of the study, but in the later stage of the study, some scholars believed that organizational environmental factors also have a deeper impact on job performance, as shown in the table below.

Table 1. TFactors influencing job performance

Levels	Influence factors	Opinions
Indivi-dual level	Personal capabilities	Individual abilities can have a significant impact on job performance, such as individual possession of skills, perception of risk preference, achievement motivation.
	Personality Traits	Employee collectivist values, self-esteem, and role perceptions are predictive of organizational citizenship behavior.
	Mental Capital	The level of psychological capital is directly proportional to the level of employee task performance.
	Accumulated experience	The accumulation of experience is directly proportional to the employee's job performance.
	Self-efficacy	Self-efficacy can have a significant positive effect on job performance.
Organizatio-nal level	Individual differences	Individual differences in employees, such as gender, age, and education level, have a significant effect on job performance.
	Work Environment	There is a significant positive relationship between work environment and task performance.
	Sense of organizational fairness	A sense of organizational fairness directly affects employee performance and also indirectly affects employee performance through two mediating variables: leader-member exchange relationships and organizational commitment.
	Leadership styles	Leadership style is a representative factor affecting employee performance, and different leadership behaviors differ in predicting job performance.
	Corporate culture	A healthy corporate culture creates a good organizational environment for employees and enhances their sense of belonging, which in turn improves job performance. The match between employees' personality and corporate culture also affects their job performance.

3. The relationship between workplace micro-breaks and job performance.

3.1. Relationship Overview

Related studies have revealed the relationship between workplace micro-break duration, frequency of occurrence, and work performance. Specifically, McLean et al. showed that a 30-second workplace micro-break activity did not cause a decrease in staff productivity. Lim and Kwok found that workplace micro-break duration was positively associated with post-break task performance. Kim et

al. contend from a discursive perspective that the relationship between workplace micro-break duration and task performance is not monotonically increasing or monotonically decreasing. They argue that there may be an optimal value for the duration of workplace micro-breaks, and that employees are able to achieve optimal performance when the duration reaches the optimal value, while going above this optimal value may be counterproductive. The reason for this may be that long work breaks do not reduce the quantity of work, but rather cause a backlog of work; therefore, after the break, employees need to put more effort into completing the backlog of tasks within a limited time, resulting in "anxiety" or "the pursuit of speed at the expense of quality", which ultimately leads to lower task performance. In addition, too long a break can make it more difficult for individuals to switch to work mode, making it difficult for employees to engage in task performance immediately after the break. In summary, the duration of workplace micro-breaks and employee task performance may exhibit an over-performance effect. In addition to focusing on duration, some studies have begun to focus on the results of the impact of workplace micro-breaks frequency and found that high frequency of workplace micro-breaks is beneficial to employees in generating positive psychological resources, which in turn is beneficial to improve employees' sales performance and productivity, compared to lack of workplace micro-breaks or low frequency of workplace micro-breaks.

Several studies have also shown that most types of workplace micro-break activities are beneficial in alleviating or preventing the depletion of employees' self-regulatory resources, thereby positively affecting employee performance. For example, Henning et al. found that brief stretching exercises enhanced employees' subsequent work productivity. Rzeszotarski et al. found that both workplace micro-break activities, playing games and reading comics, improved employee performance. As another example, Trougakos et al., using a sample of waiters, found that employees were able to obtain improved performance after engaging in relaxing and social activities. Further, Kim et al. introduced positive emotions as a mediating variable and found that the frequency of relaxation, social, and recreational cognitive activities indirectly predicted employee sales performance through positive emotions. However, the correlation between frequency of nutritional intake and employee sales performance was not significant in this study. Furthermore, habitual and purposeless food intake may not reduce the depletion of self-regulatory resources and may even deplete employees' self-regulatory resources. The reason for this may be because for some employees who are concerned about caloric intake, food intake tends to cause psychological distress to individuals, causing them to worry about their body image being affected, thus exacerbating self-loss and affecting subsequent work performance.

3.2. Theoretical Foundations

3.2.1. Effort-recovery model.

The effort-recovery model focuses on work demands and employee recovery, which states that continuous workload leads to the need for recovery. In the recovery process, work demands cease, workload is reduced or even disappears completely, allowing the individual's physical and mental systems to recover; and the importance of timely recovery is emphasized, i.e., the individual needs to replenish resources in time to avoid the risk of short-term resource depletion or more harmful, long-term adverse consequences in the long run, which indicates the importance of timely recovery during work. During a workday, employees usually spend 5% to 15% of their work time on non-work activities in order to achieve timely recovery and replenishment of resources already consumed in previous tasks. Thus, it seems that the resting activities of employees during work are an essential recovery process during the working day. Individuals engage in activities that require little effort for the individual such as relaxation, meditation, or watching television, which can return the individual's energy to a pre-stress state; mental disengagement activities also facilitate the recovery of employee vitality. This indicates the restorative and replenishing effect of micro-rest activities on individual resources.

3.2.2. Resource conservation theory.

Resource conservation theory further explains the process of employee recovery and the positive outcomes that result from it. According to resource conservation theory, individuals will adopt strategies to avoid further loss of resources and actively seek to replenish and acquire resources. Therefore, after working for a period of time, employees will actively adopt resource management strategies, i.e., inter-work micro-breaks, to stop the continuous loss of resources and to recover and replenish individual resources. Short periods of stretching during the workday are beneficial for subsequent productivity, and relaxation and social activities also show positive effects on subsequent performance. Thus, when depleted resources are restored and replenished, employees have the physical and mental resources to continue to perform their job tasks and show higher task performance in the following tasks.

4. Mediating Mechanisms and Boundary Conditions

4.1. Mediating Mechanisms

4.1.1. Emotional mechanisms.

Currently, emotions are proven to be an important mechanism connecting workplace micro-breaks with employees' work status and performance performance. Kim et al. stated that positive emotions play a mediating role between workplace micro-breaks and employees' sales performance. Chong et al. found that positive emotions play a mediating role between workplace micro-breaks and intrinsic motivation and work engagement. Specifically, workplace micro-breaks help employees construct psychological energy resources such as positive emotions; under the influence of positive emotions, employees' intrinsic motivation, work engagement, and work performance are enhanced. It should be added that workplace micro-breaks not only stimulate positive emotions and thus improve employees' status and performance, but also reduce negative emotions, thus alleviating work stress and emotional exhaustion. Specifically, workplace micro-breaks allow employees to stop from their busy tasks to rest and relax, which helps to relieve employees' negative emotions such as tension, anxiety, anger and uneasiness at work, thus reducing their sense of stress and emotional exhaustion levels.

4.1.2. Recovery mechanisms.

The restorative experience is one of the main mechanisms explaining the positive efficacy of workplace micro-breaks. Previous studies have suggested that workplace micro-breaks help employees achieve psychological disengagement and a relaxation experience, which in turn improves physical and mental health and work status. For example, Chong et al. found that psychological detachment mediated the relationship between workplace micro-breaks and emotional well-being. This is because workplace micro-breaks allow employees to temporarily stop and disengage from work; this psychological disengagement allows employees to move away from stressors at work, thus reducing negative emotional experiences. In addition, psychological disengagement facilitates employees' recovery of cognitive and emotional resources, improves the quality of interpersonal interactions and subsequent performance, and ultimately increases employees' emotional well-being. In addition to the psychological disengagement mechanism, Bennett found that relaxation experience can also play a mediating role in the relationship between workplace micro-breaks and vitality and attention. Compared to work tasks, employees are able to relax physically and mentally during workplace micro-breaks and enjoy the positive experience of the break activity, enhancing the relaxation experience; the relaxation experience can reduce or even eliminate emotional tension and cognitive tension, thus enhancing employees' subsequent vigor and attention.

4.1.3. Cognitive input.

According to resource limitation theory, employees have a limited cognitive capacity and, therefore, a limited ability to process information. By continuously devoting too much energy to focus on familiar work modules, the allocation of cognitive resources to unfamiliar work modules and

unproductive matters is reduced, which in turn affects employee performance. Analyzed from the perspective of concentration and attention, cognitive input facilitates employees to focus their attention in the process of completing work tasks, actively collecting and applying information, and overcoming difficulties encountered in their work. Employees' work is not singularly repetitive, but usually complex, unknown, and challenging, requiring significant cognitive resources. When employees are disturbed by external factors and cannot fully engage in the work process or when cognitive engagement is interrupted, employees usually choose to do simple and easy tasks, or even "grind"; in contrast, when employees are immersed in the situation of efficiently completing work tasks, they will put more effort to analyze and identify work problems, collect and organize work content information, and try to propose a variety of different solutions to complete the work tasks required by job responsibilities. Also, on top of their work, they help their colleagues with heavier workloads to complete their work. Cognitive state factors are predictor variables of performance outcomes. It has been shown that employee cognitive engagement has a significant positive effect on performance. Cognitive engagement as a cognitive state positively affects employee performance.

4.2. Boundary Conditions

4.2.1. Work input.

Kim et al. responded to Trougako and Hideg's call to explore the weighting mechanisms of the relationship between workplace micro-breaks and employee performance and found that long-term work engagement negatively moderates the indirect effects of employee workplace micro-break frequency via positive emotions on employee performance. Specifically, work engagement tends to be driven by a combination of work resources (e.g., social support, feedback) and personal resources (e.g., psychological resilience, positive self-assessment). For employees who are highly engaged in their work over time, they have more individual resources to spend on maintaining motivation and improving performance. This means that although immediate work tasks consume individual resources, highly engaged employees are still sufficiently motivated to perform the task persistently. Therefore, this group of employees is less affected by workplace micro-breaks. In other words, for employees with high work engagement, workplace micro-breaks have a weaker effect on positive emotions and subsequent performance performance.

4.2.2. Long-term orientation.

Individuals with a long-term orientation are better able to plan for future events and work for future benefits, while being more persistent. Employees need micro-rests during long working hours to restore normal levels of body function and to prevent physical or psychological discomfort caused by overload. Workplace micro-breaks can help employees temporarily achieve a psychological detachment from work and help them recover their physical abilities so that they can better work and serve the organization. In contrast, employees with low levels of long-term orientation tend to be limited to immediate benefits and see breaks as a sign of slacking off by slowing down their work. In this case, the employee's responsiveness to the organization will diminish, and even previously positive emotions may change to negative ones. Workplace micro-breaks are an important investment in the work situation to replenish lost resources and to improve cognitive engagement and positive emotions. According to the resource conservation theory, a positive emotional and high level of cognitive state at work can contribute to the improvement of employee performance. Long-term orientation as a value can positively influence and play a positive role in the relationship between workplace micro-breaks and employee psychology and behavior. Specifically, for employees with a high level of long-term orientation, micro-breaks at work provide a strong sense of resource acquisition, which leads to high positive emotions, deep cognitive engagement, and more resources needed to cope with work, resulting in improved performance. Conversely, for employees with a low level of long-term orientation, micro-breaks at work provide a weak sense of resource acquisition, resulting in low positive emotions and shallow cognitive engagement, and thus their work performance is not improved.

5. Summary

We can see from the research on workplace micro-breaks and employee performance that appropriate workplace micro-breaks can improve employee performance, specifically, there is a maximum value for workplace micro-breaks to generate the best performance for employees, and when the length and frequency of micro-breaks are higher than this value, the effect may be counterproductive. In addition, the form of workplace micro-breaks also has a significant impact on employees' performance. Specifically, relaxing activities (e.g., socializing, games, etc.) lead to higher performance, but aimless food intake may not achieve the effect of making employees' performance higher. Therefore, if companies want to improve the performance of their employees through workplace micro-breaks, they must ensure that the frequency, length and format of the micro-breaks are appropriate. In addition, this paper also summarizes the mediating mechanisms and boundary conditions of the effects of workplace micro-breaks on employee performance by sorting out the relevant studies on workplace micro-breaks and employee performance. First, workplace micro-breaks can affect employees' performance through three aspects: emotional mechanism, recovery mechanism, and cognitive engagement; second, employees' work engagement and long-term orientation can have a moderating effect in the impact of workplace micro-breaks on employees' performance.

By analyzing the limitations of the existing articles on workplace micro-breaks and work performance, the following points were summarized and summarized as prospects for future research:

(1) Existing studies on the effects of workplace micro-breaks on job performance have focused on employees' in-role performance, and ignored extra-role performance. However, extra-role performance is also an important component of job performance, and workplace micro-breaks also provide favorable conditions for employees to demonstrate extra-role behaviors, so this paper argues that future research can focus on the effects of workplace micro-breaks on extra-role performance.

(2) At present, scholars' research on workplace micro-breaks mainly focuses on its impact on outcomes, but there is a lack of investigation on its impact factors. Therefore, future research can explore the antecedent variables of workplace micro-breaks from the perspective of "timing and location", and from the perspective of time, organization and human factors.

(3) There may be an optimal timing and length of workplace micro-breaks for optimal performance outcomes. Therefore, future research could explore how the length and timing of micro-breaks are appropriate within a workday, or over a longer period of time, and what the performance levels of employees are under that arrangement.

(4) Existing research has only considered how individual traits act on inter-worker micro-breaks to influence job performance, and future research could examine more boundary conditions, particularly team or organizational level factors whether there are cross-level moderating effects on the relationships involved in the study.

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