Does enterprise social media use promote employee creativity and well-being?

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ARTICLE INFO

ABSTRACT

Despite the increased use of Enterprise Social Media (ESM) worldwide, its adverse impact on firms' employees, such as exhaustion, has not been researched sufficiently. This is a critical gap in the literature since employees' well-being is crucial to maintaining their productivity. The current study addresses this gap by examining whether interruption overload and psychological transition affect the relationship of employees' socio-instrumental use of ESM with ESM-related exhaustion and employee creativity, respectively. We utilized the Conservation of Resources (COR) theory to conceptualize the mediation effect of interruption overload and psychological transition on the hypothesized associations. We also used the Regulatory Focus Theory (RFT) to propose the moderation effect of promotion and prevention-focus of employees on these associations. Cross-sectional data collected from 323 employees of firms in China were analyzed to test the proposed associations. Our findings suggest that both interruption overload and psychological transition mediate the association of ESM usage with exhaustion and creativity, respectively. Furthermore, the results revealed that promotion-focus strengthens the positive relationship between ESM usage and psychological transition, whereas prevention-focus of weakens the positive relationship between ESM usage and interruption overload. The study contributes key theoretical and practical insights to set an agenda for further research and aid managerial decisions.

1. Introduction

ESM is an organizationally-bound digital platform that allows social networking for information sharing, advice seeking, and facilitating knowledge sharing among coworkers (Leonardi, 2015). ESM usage not only enables interpersonal communication, collaboration, and the possibilities of social interactions (Leonardi, 2015) but also supports employee creativity (Al-Emran, Mezhuyev, Kamaludin, & Shaalan, 2018; Liu, Chan, Yang, & Niu, 2018), which is necessary for organizational competitiveness (Ding, Liu, Huang, & Gu, 2019).

On the one hand, scholars suggest that ESM use at the workplace is associated with two types of networking ties, namely, peer ties (for discussing work-related matters) and friendship ties (for discussing non-work-related matters) (Umphress et al., 2003; Leonardi, 2015). On the

other hand, they have categorized ESM use by employees into two broad types, namely, instrumental use (i.e., seeking information and advice and drawing upon the expertise of coworkers) and expressive use (i.e., building and maintaining stronger personal relationships with co-workers) (Chen, Wei, Davison, & Rice, 2019). In this study, we collectively call the use of ESM for work-related and relationship-related purposes 'socio-instrumental ties', in consonance with the prior literature (e.g., Ali-Hassan et al., 2015). Consequently, we define socio-instrumental ties as the extent to which employees use ESM for friendship, expressing emotions (e.g., like or dislike), and seeking and sharing social support, information, and professional advice.

In this regard, it is important to acknowledge the fact that despite providing psychological support to employees facing work-related challenges (Cai, Huang, Liu, & Wang, 2018), the socio-instrumental

use of ESM may pose a major productivity challenge for knowledge workers (Chen & Wei, 2019). For instance, ESM usage may be associated with poor task execution (Chen & Wei, 2019), absentmindedness (Turel & Serenko, 2012), and distraction (Ali-Hassan, Nevo, & Wade, 2015). Due to this, it would be fair to say that ESM usage, all its merits notwithstanding, has certain negative outcomes that stem from the ubiquitous connectivity it offers during working hours. Scholars have noted that such seamless communication offered by ESM platforms may result in interruption overload and problematic psychological transitions between contexts (Chen & Karahanna, 2018). Interruption overload refers to the stoppage or hindering of any work-related activity for a given time (McDaniel & Drouin, 2019). Employees using ESM may experience ephemeral and episodic forms of interruption that require them to toggle their attention between work and non-work roles (Chen & Karahanna, 2018). Such interruptions may pose challenges to employees in making psychological transitions on a moment-to-moment basis (Chen & Wei 2019). These unplanned interruptions usually last for a minute or less and can be quite taxing for employees (Chen & Karahanna, 2018). Furthermore, interruption overload and psychological transition can also impede the creative development of employees (Chen & Karahanna, 2018; Chen & Wei, 2019) and lead to exhaustion (Ali-Hassan et al., 2015). Despite these concerns being previously raised by scholars, it is not currently known to what extent the socio-instrumental use of ESM is associated with interruption overload and psychological transition, and how these influence employee creativity and exhaustion, respectively. In comparison, the negative fallout of social media usage in the general context has been examined extensively by many recent studies, which have, for example, examined psychological well-being (Dhir et al., 2018; Tandon et al., 2020), disturbed sleep and school burnout (Evers et al., 2020), social media fatigue (Malik et al., 2020), and academic performance decrement (Dhir et al., 2019).

In fact, our review of the prior literature on ESM suggests various gaps. First, there is an over-emphasis on the positive aspects of ESM usage, while the negative outcomes, such as ESM-induced social and informational overload, have remained neglected. This gap is especially important to address as information overload can undercut employees' productivity (Chen & Wei, 2019) and cause emotional exhaustion, thereby hampering innovation (Tang et al., 2019). Furthermore, employees need to invest resources to handle ESM demands. If the depletion of resources exceeds their ability to obtain new resources, it can similarly lead to emotional exhaustion and stress (Hobfoll, 1989). Thus, a limited understanding of the adverse outcomes of ESM usage can be detrimental to both employees and their organizations as these negative fallouts may deplete resources and trigger undesirable coping mechanisms as a result. Due to this, we contend that the related gaps in ESM research need to be better illuminated and addressed. The current investigation thus focuses on how the socio-instrumental use of ESM undermines employee creativity and increases their exhaustion.

Second, the extant literature has primarily focused on underlying measures, such as absorptive knowledge creation capability (e.g., Cao & Ali, 2018), psychological conditions (e.g., Cai et al., 2018), and trans-active memory systems, such as specialization and credibility (Ali, Wang, & Khan, 2019). In comparison, the underlying variables representing the negative side of ESM usage have been rarely studied. In this context, we find, to the best of our knowledge, that the mediation effect of two negative aspects, namely, interruption overload and psychological transition, is not yet known on the association of ESM usage and its outcomes. We argue that understanding such mediating mechanisms can improve the ability of the stakeholders concerned in better managing the negative fallout of ESM usage. The current investigation thus examines the mediating effect of these two variables, thereby providing timely and relevant inputs to help managers minimize interruption and enhance employee performance with non-intrusive strategies.

Third, the prior literature has acknowledged the link between ESM usage and individual characteristics (Gibbs et al., 2013) and has called for research to explore this relationship (Zivnuska, Carlson, Carlson, Harris, & Harris, 2019). One such individual characteristic in the work context is the regulatory focus of employees, i.e., a promotion or prevention-focus, which represents two distinct motivational states (Liang, Xue, & Wu, 2013) that can be associated with the outcome of ESM usage. It is important to investigate the regulatory focus of employees because promotion-focused employees are likely to appreciate an open communication environment, whereas prevention-focused employees may experience negative feelings about the same. Furthermore, we find that no prior study has examined the moderation effect of employee regulatory focus on the association of the socio-instrumental use of ESM with interruption overload and psychological transition, respectively. Thus, we propose to address this gap to uncover how the motivation states of employees can affect their corresponding ESM usage outcomes.

Based on the preceding discussion, which highlights that ESM usage should be better understood in terms of its impact on employees' resources considering their regulatory focus type, the objective of the present study may be specifically stated through two principal research questions (**RQs**): **RQ1.** How does the conservation of resources help explain the negative effects of ESM usage in the workplace? **RQ2.** What is the role of regulatory focus in contextualizing the effects of ESM usage in the workplace? The study responds to these research questions by proposing and testing a conceptual model grounded in the Conservation of Resources (COR) theory (Hobfoll, 1989) and Regulatory Focus Theory (RFT) (Higgins, 1998).

COR serves as the basis to propose hypotheses related to the mediating role of interruption overload and psychological transition. In a similar vein, RFT is used to propose the moderation effect of two distinct types of employee focus, namely, promotion and prevention. Data collected through a cross-sectional study with 318 employees of firms in China are then analyzed to test the proposed associations.

The four novel contributions of the current study may be summarized as follows. First, at a time when the debate on the dark aspects of social media is heating up, there is a pressing need to deliberate on the possibility that ESM usage at work may deteriorate employees' performance rather than improve it (Cai et al., 2018; Zhao et al., 2020). Accordingly, it also highlights the essential yet neglected area of the negative aspect of ESM usage. Second, the study presents new findings that may be useful for key stakeholders in understanding how interruption overload and psychological transitions that adversely affect work performance can be managed. The results thus provide insights into how this negative fallout can be reduced by defining the fine line between the leveraging of interruptions for work effectiveness on the one hand and the depletion of resources by overusing ESM platforms on the other. The results also shed light on how the socio-instrumental use of ESM exacerbates these negative outcomes. Third, the study improves the previously limited theory-based insights available in the ESM literature by integrating COR theory and RFT to serve as a theoretical lens to conceptualize the adverse outcomes of ESM usage. Finally, by examining how the regulatory focus of employees impacts the outcome of their ESM usage, the current study provides novel insights regarding how individual differences may affect whether the socio-instrumental use of ESM is beneficial or detrimental.

The remainder of this paper is organized as follows. The second section presents the literature and theoretical background, and the third section discusses the research model and the development of the hypotheses. The fourth section presents the data and methods, while the fifth section presents the results. The sixth section discusses these findings, in turn, and the seventh section deliberates upon the implications, limitations, and future research directions of the present study.

2. Theoretical background

2.1. Conservation of resources (COR) theory

The Conservation of Resources theory (COR) addresses how

individuals invest resources to handle demands (Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014). It includes psychological resources, such as job security (Selenko, Mäkikangas, Mauno, & Kinnunen, 2013), supervisor support at the workplace (Liu, Kwan, Fu, & Mao, 2013), and family-friendly workplace policies (Payne, Cook, & Diaz, 2012). The primary purpose of this theory is to understand how people protect their existing resources and obtain new ones (such as status, conditions, and spiritual energy) (Hobfoll, 1989). COR further postulates that individuals manifest appropriate behavior based on their existing resources to prevent any further loss to them (Hobfoll, 1989). This means that people invest more resources to avoid resource loss, repair such losses, and gain more resources (Hobfoll, 1989). In addition, individuals with greater resources are more capable of orchestrating better resource gain, resulting in positive outcomes if their investment is aligned with their preferences (Halbesleben & Wheeler, 2015). COR also proposes that if employees lose existing resources due to excessive job demands and are unable to attain new resources, such depletion can lead to emotional exhaustion and stress (Hobfoll, 1989). Recent studies have used the resource tenant of COR to reveal that if environmental demands exceed one's absorptive capacity, it induces resource loss, which further results in negative psychological consequences, such as emotional exhaustion (Halbesleben & Wheeler, 2015), burnout, and stress (Wang, Tan, & Li, 2020).

This proposition is relevant to the present study since handling ESM usage-related demands requires the resources of employees in the form of their time and energy. Thus, handling ESM-related interruption overloads, such as coworkers seeking social support and other work and non-work-related demands, can be expected to cause resource loss and trigger emotional exhaustion in employees. As such, the present study uses COR to theorize the effect of the socio-instrumental use of ESM and its mechanisms (i.e., interruption overload and psychological transition) on employees.

2.2. Regulatory focus theory (RFT)

RFT postulates that human conduct is encouraged by two distinct types of regulatory focus, namely, promotion-focus and prevention-focus (Higgins & Pinelli, 2020). These two regulatory approaches represent a very basic level of different endurance needs, such as nurturance needs and security needs (Higgins & Pinelli, 2020; Wallace, Butts, Johnson, Stevens, & Smith, 2016). Individuals who are promotion-focused are progressively dedicated to constructive results (e.g., gains or non-gains) (Arazy & Gellatly, 2012; Liang et al., 2013), while, in contrast, prevention-focused employees are guided by security and well-being needs, including satisfying commitments, obligations, and duties (Arazy & Gellatly, 2012; Liang et al., 2013; Wallace et al., 2016). Individuals who are prevention-focused are progressively concerned about unfavorable results (e.g., losses and non-losses) (Arazy & Gellatly, 2012; Liang et al., 2013). Notably, although promotion and prevention-focused employees are connected, they have particular persuasive states (Arazy & Gellatly, 2012). Empirical investigations have shown the symmetry of the promotion and prevention foci (Higgins & Pinelli, 2020), thereby implying that these two regulatory states can be inspected independently (Koopmann, Lanaj, Bono, & Campana, 2016). The present study uses RFT as a theoretical lens to test the influence of employees' focus on the association of using ESM socio-instrumentally with its mechanisms. Since promotion-focus and prevention-focus represent personal/individual differences among employees, the present study has used these regulatory foci as moderating variables to measure how the strength of the association of ESM usage with interruption overload and psychological transition is different for promotion-focused employees than it is for prevention-focused employees.

This study uses RFT for the following reasons: (a) it has been prominently used in management and organizational behavior research (e.g., Zou & Chan, 2019; Zhang, Zhang, Ng, & Lam, 2019). For example,

Zou and Chan (2019) examined promotion and prevention-focused employees to determine their ethical judgment and intention with the moderating effect of moral intensity. Although RFT has been utilized infrequently in the earlier information systems (IS) research (e.g., Arazy & Gellatly 2012; Koopman et al., 2016; Liang et al., 2013), Liang et al. (2013) have contended that this theory can add to a thorough comprehension of the IT conduct of individuals. The theory further assists researchers in profoundly comprehending the connection between individuals' motivations and the way they try to accomplish their ideal objective (Wallace et al., 2013). Since it is likely that the use of ESM for socialization and collaboration is typically driven by individual motivations, RFT is suitable for the present study. Accordingly, the theory helps factor in the motivations of promotion and prevention-focused employees in regards to ESM usage. This is especially useful as promotion-focused individuals are more likely to be attuned to the benefits of change and more receptive to taking the initiative in collaborating and seeking information (Koopman et al., 2015). In contrast, prevention-focused individuals are more sensitive about sharing their information and commenting on others' work; in response to such fear, they may prefer to be safe, thereby avoiding social networking (Wallace et al., 2016; Koopman et al., 2015).

3. Research model and hypotheses

This study uses dual theoretical support from COR and RFT to formulate a research model for measuring how the socio-instrumental use of ESM induces interruption overload and psychological transition among employees and how it is associated with ESM-related exhaustion and employee creativity as a result (see Fig. 1). The independent variable in our model is the socio-instrumental use of ESM, which we have theorized based on the different uses of ESM platforms, such as socialization and collaboration. As mentioned above, the study uses interruption overload and psychological transition as mediating variables. These mediating mechanisms represent the outcome of work and non-work-related requests received from coworkers through the company's ESM network and highlight the resource loss that employees experience due to this ESM usage. The two dependent variables in the proposed model, ESM-related exhaustion and employee creativity, represent the adverse psychological and behavioral outcomes of this ESM-induced resource loss during working hours. Since creativity is considered the most popular ability that employees should possess to improve their performance (Ardito, Besson, Petruzzelli, & Gregori, 2018; Alavi, Abd, Wahab, Muhamad, & Arbab Shirani, 2014; Ardito, Besson, Petruzzelli, & Gregori, 2018; Cai et al., 2018), the present study proposes to examine the effect of the ESM usage mechanism on employee creativity.

In addition, the study draws upon RFT to capture the individual differences among employees by examining the moderating influence of promotion and prevention-focus of employees on the association of socio-instrumental ESM use with interruption overload and psychological transition, respectively. The use of these moderators reflects the fact that it is up to the employees' discretion whether they allocate more resources to promoting social ties at work (promotion-focus) or pay more attention to work-related duties and obligations (prevention-focus). Understanding the regulatory focus of employees is essential since it has been empirically shown that these dimensions have an orthogonal nature conceptually (Wallace & Chen, 2006). In addition, the prior literature has suggested that promotion and prevention foci are independent of one another, representing distinct motivational states (Arazy & Gellatly, 2012) and, therefore, do not lie on opposite ends of the same continuum. It is possible for an individual to have a high level of both, either, or neither (Wallace & Chen, 2006; Byron, Peterson, Zhang, & Lepine, 2016). An understanding of how individuals regulate themselves, particularly when faced with high-resource loss situations, is of considerable significance given the differences in their ability to regulate themselves and cope with stressful milieu (Scholer & Higgins, 2010). Since an employee's regulatory focus causes them to have a
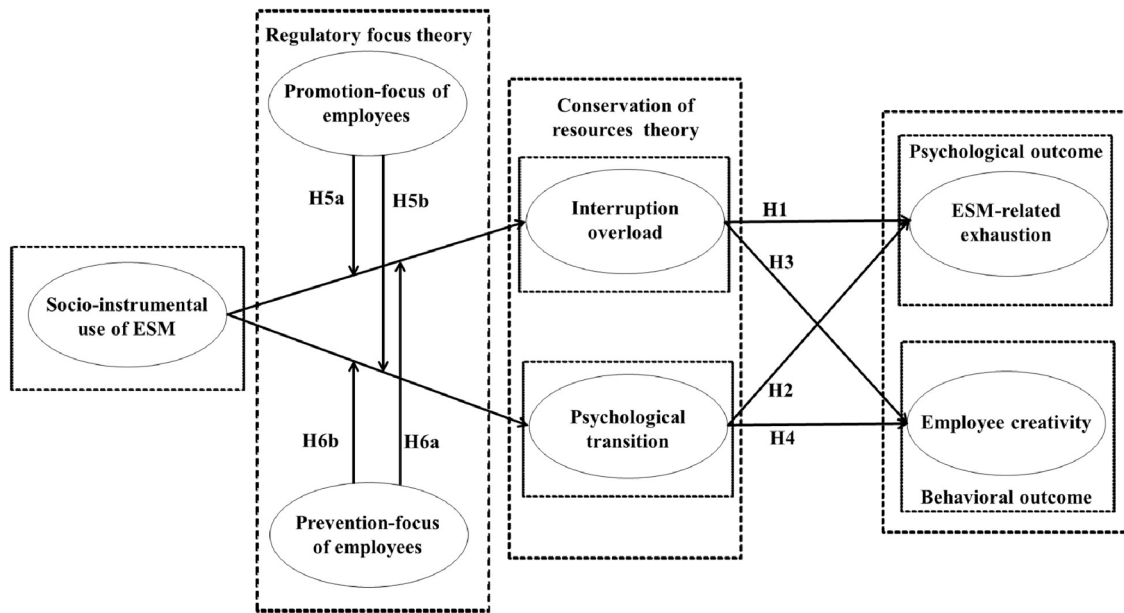
Fig. 1. Proposed Research Model.

preference in terms of goals (i.e., promotion-focused employees) and coping mechanisms (i.e., prevention-focused employees), measuring both regulatory types is important. In the present context, employees may experience an increase or decrease in interruption overload and psychological transition depending on their goals and coping mechanisms, respectively.

The operational description of all variables under the study is presented in Table 1. Finally, the model controls for the effect of seven variables: positive affect (PA), negative affect (NA), age, gender, and interruptions, such as phone calls, email checking, and messaging.

3.1. Hypotheses development

Interruptions erode key employee resources, such as the time and vitality of the individuals embedded in the ESM network. In fact, a potential negative effect of ESM usage is that devoting resources to non-work interruptions may leave fewer resources for the employee to perform their work-related obligations, thereby resulting in a zero-sum game (Halbesleben & Wheeler, 2015). In addition, scholars have shown that individuals feel behavioral boredom and emotional exhaustion if too many people are embedded in-network as there is an increase in the interaction density (Cao et al., 2018; Luqman et al., 2017; Maier et al., 2015). Furthermore, when such an increase in network interaction demands occurs, negative psychological and behavioral consequences may arise, in turn, depending on the employee's capacity to handle these interruptions. Tarafdar, Pullins, and Ragu-Nathan (2015) called this phenomenon a "techno-invasion", specifically addressing the technology-induced stimuli, events, or demands.

We conceptualize the negative effect of our independent variable, the socio-instrumental use of ESM, on the basis of (a) the socio-instrumental demands, representing the social support and advice-seeking demands of coworkers, which make it difficult for the target employee to complete their work-related demands (Ayyagari et al., 2011; Tarafdar et al., 2015); and (b) the COR theory, which postulates that an imbalance between environmental demands and one's handling capacity is more likely to induce feelings of psychological and behavioral strain (Chen & Karahanna, 2018).

We further conceptualize the two mediating variables, interruption overload and psychological transition, on the basis of the three types of causes that contribute to work interference: (a) time-based interference, when time spent on one activity impedes other roles, b) psychological-

based interference, i.e., a behavioral pattern that is incompatible with the expected one, and c) strain-based interference, when pressure from one role interferes with another (Greenhaus & Beutell, 1985) and thereby depletes one's mental and physical resources (Edwards & Rothbard, 2000). Both time and strain-based conflicts denote the transmission of resources from the work to the non-work domain (i.e., socio-instrumental), which provokes negative psychological and behavioral outcomes (conceptualized here as interruption overload). In comparison, the psychological conflict indicates that the individual's preoccupation with the job and transfer of resources from one domain to another is taxing on their resources, thereby causing negative outcomes, which we conceptualize as psychological transition.

The socio-instrumental demands of ESM usage during working hours require time and energy, which can be draining on employees' resources (Edwards & Rothbard, 2000). According to COR theory, strain arises when there is a misfit between the required and the available resources (Halbesleben & Wheeler, 2015). We argue that the transfer of resources in the form of time and energy to other domains is likely to impair the available resources required to perform job-related tasks. Based on this contention, we characterize interruption overload as the state in which employees receive more socio-instrumental demands from their ESM network than they can easily handle during their working hours. The resulting gap between the demands and the employees' available capacity to deal with them can thus lead to various psychological and behavioral outcomes (Halbesleben & Wheeler, 2015).

ESM-related exhaustion refers to the depletion of employees' emotional and mental resources that result from fulfilling the ESM-based socio-instrumental demands (Halbesleben & Wheeler, 2015). Work exhaustion, a widely studied phenomenon from the work-life conflict perspective (Ayyagari et al., 2011; Mao, Liu, Zhang, & Deng, 2016), is also relevant in the context of ESM usage in that interruption results in additional work demand and slack resources. Such interruptions heighten the level of exhaustion when they exceed one's absorptive capacity (Ayyagari et al., 2011). This increased level of exhaustion results in negative psychological consequences, such as fatigue, dampening of the individual's level of satisfaction and commitment, loss of interest, and trust (Tarafdar et al., 2015; Maier et al., 2015). Interruptions during working hours can also creep into employee's non-work domains, such as rescheduling or even cancelling leisure activities to accommodate work-related demands (Chen & Karahanna, 2018).

We propose that interruptions due to the socio-instrumental use of

Table 1
Operational description of study variables.

Variable	Description	Reference
Socio-instrumental use of ESM	ESM are web-based platforms that provide socialization features that support coordination and joint efforts within an organization. ESM features allow both instrumental uses (i.e., seeking information and advice and drawing upon the expertise of coworkers) and social use (i.e., building and maintaining stronger personal relationships with colleagues). Taken together, these two functions represent the socio-instrumental use of ESM	Chen, Wei, Davison, & Rice (2019); Leonardi (2015); Leonardi & Meyer (2015)
Interruption Overload	Interruption is defined as any event that breaks the continuity of an enduring task, thereby causing a delay or impeding its occurrence altogether. It has clear start and endpoints and is thus, referred to as a discrete occurrence. Interruption is argued to greatly impede the efforts to manage employees' workplace productivity since it dampens their ability to think and focus their attention on important tasks. In the extant literature, frequent interruption has been associated with overload, stress, exhaustion, distress, and process loss	Al-Emran et al. (2018); Ayyagari, Grover, & Purvis (2011); Ding et al. (2019); Halbesleben & Wheeler (2015); Jett & George (2003);Zhang, Zhao, Lu, & Yang (2016)
Psychological Transition	Psychological transition refers to the shift of attention from one domain to another, such as the disengagement from work to a non-work domain. Such psychological shifts trigger different work and non-work-related behavior	Ashforth et al. (2000); Zhang, Li, & Harris (2015)
ESM-related Exhaustion	ESM usage has an adverse effect in the form of the moment-to-moment transition from the work to the non-work domain that employees must make to meet the demands of a large ESM network. This juggling across domains might exceed one's capacity to handle the overload, thereby inducing a feeling of exhaustion	Cao, Masood, Luqman, & Ali (2018); Chen & Karahanna (2018); Luqman, Cao, Ali, Masood, & Yu (2017)
Employee Creativity	Creativity refers to the ability of employees to find and use creative solutions to enhance the profitability of the organization. ESM offers a platform for employees to discuss their challenging tasks and to propose possible creative solutions, which enhances their creativity	Alavi et al. (2014); Ding et al. (2019); Pee (2018)
Promotion-focus of Employees	Promotion-focused employees are employees who share knowledge or provide help to other coworkers in the presence of potential gains, such as those afforded by an	Arazy & Gellatly (2012)

Table 1 (*continued*)

Variable	Description	Reference
Prevention-focus of Employees	open communication environment Prevention-focused employees are employees who maintain the status quo and satisfy their in-job commitments, obligations, and duties at work	Koopman et al. (2015)

ESM have the potential to increase employees' psychological feeling of overload, which, in turn, may lead to exhaustion. Specifically, although ESM enables employees to communicate with each other to gratify their work and social needs (Leonardi, 2015; Mao et al., 2016), the open communication facilitated by these platforms increases the level of demands, which induces a feeling of overload and exhaustion. Thus, ESM usage might be seen as a double-edged sword in the workplace, where, on the one hand, it facilitates communication, and on the other, it induces cognitive overload. This increased interruption has variously been regarded by scholars as work overload (Ayyagari et al., 2011), knowledge overload (Hunt & Newman, 1997), and communication overload (Zhang et al., 2016), which may compound the employees' level of exhaustion. In other words, ESM usage may culminate in exhaustion through the mechanism of interruption overload. Accordingly, we hypothesize:

H1. The positive relationship between the extent of the socio-instrumental use of ESM and ESM-related exhaustion will be mediated by interruption overload.

Psychological transition represents the psychological shift between work and non-work demands, resulting in disengagement from one task and moving to another, such as responding to the socio-instrumental demands of ESM during working hours (Al-Emran et al., 2018; Edwards & Rothbard, 2000; Mao et al., 2016). These psychological transitions may activate non-work-related mental models during working hours, which may create psychological conflict as a result. It is evident in the extant literature that transitions during working hours, such as home demands, invade employees' working patterns and induce strain (Cao et al., 2018; Tarafdar et al., 2015). Such psychological transitions may trigger ruminative thoughts during working hours and heighten the employees' level of psychological fatigue, thereby impairing their well-being (Ayyagari et al., 2011). In the context of the present study, the increased socio-instrumental demands from the ESM network and the frequent transition from one domain to another are likely to result in the depletion of employees' resources and thus lead to a feeling of exhaustion. Based on this discussion, we feel that the ESM usage may induce exhaustion in employees through the mechanism of psychological transition. Due to this, we propose:

H2: The positive relationship between the extent of the socio-instrumental use of ESM and ESM-related exhaustion will be mediated by psychological transitions.

Past studies have revealed that employees' creativity may be negatively associated with stressful demands that exceed their capacity to manage them (Al-Emran et al., 2018; Ayyagari et al., 2011). Scholars have also noted that the increased interruptions while working may impair the workers' thinking patterns, cognition, and productivity (Cai et al., 2018) while also posing demands that are more than they can reasonably handle. According to the displacement hypotheses, the technological interruption may further exacerbate one's task efficiency and trigger mind wondering (Roberts & David, 2016). Moreover, technological interruptions reduce focused attention, which then undermines employees' work quality (Jett & George, 2003). Such interruptions also induce attentional deficit and lead to a repetition of activities, thereby consuming more resources as a result (Humphreys, 2005). Interruptions can also increase employees' cognitive load and further create an imbalance between their work demands and their capability to meet them, which may thus elevate their stress and reduce

their productivity (Ardito et al., 2018; Turel & Serenko, 2012). Knowledge workers may also perceive that unmanaged interruptions induce negative emotional reactions, such as anger and frustration, and have a damaging effect on their performance (Turel & Serenko 2012; Ardito et al., 2018). Admittedly, a few minor interruptions may not cause a noticeable loss in performance, but at the aggregate level, they may have a significant adverse effect on productivity (Ardito et al., 2018; Roberts & David, 2016). Since the performance of employees has been linked with creativity (Alavi, Abd, Wahab, Muhamad, & Arbab Shirani, 2014; Ardito, Besson, Petruzzelli, & Gregori, 2018; Cai et al., 2018), it is pertinent to consider the effect of interruptions on this construct. Scholars have argued that creativity requires persistence (Demerouti et al., 2012) and that frequent breaks are likely to inhibit this process (Madjar, Shalley & Herndon, 2019). Similarly, frequent switching from a demanding task may prevent the employee from forming a cognitive attachment to it, which may thus undermine the creativity required to perform it well (Leroy, Schmidt, & Madjar, 2020).

Since ESM platforms are also technology-driven, it is plausible to assume that generic findings in the context of technological interruptions are also applicable to interruptions related to ESM usage. In this context, we argue that ESM-related interruptions during working hours may prevent the employee from developing and using creative thinking. For example, employees may need to use their available resources to meet general ESM-related demands, which may then leave them with little time and energy to fulfill their job-related obligations and responsibilities and hamper their creativity as a result. In a nutshell, employees' perceived unmanaged ESM-based interruption overload is likely to impair their creative thinking. Hence, we propose:

H3: The positive relationship between the extent of the socio-instrumental use of ESM and employee creativity will be mediated by interruption overload.

Information systems are increasingly being designed to support knowledge workers' decision-making and reduce their execution time (Leroy, Schmidt, & Madjar, 2020). However, employees who are cognitively absorbed in their work require significant mental attention, which can be negatively influenced if they are required to make task transitions. For example, employees engaged with their work-related tasks might psychologically shift their attention due to a phone call or an email, which is marked for priority attention (Chen & Karahanna, 2018). In fact, managers have been reported to spend 10 min of each working hour responding to some urgent task, with them not returning to their original work 41% of the time (Leroy, Schmidt, & Madjar, 2020). Higher cognitive loads are burdened by an increasing number of task shifts, which, in turn, are likely to impair the employees' creativity (Ardito et al., 2018). Scholars have also argued that although frequent task transitions may enable employees to find the solution to complex problems, such transitions often reduce the deep time required for quality work (Leroy & Glomb, 2018).

Given the importance of computer-mediated communication within an organization (Roberts & David, 2016) and the increasing pervasiveness of ESM platforms (Cai et al. 2018), we contend that the psychological transition between work and non-work-related ESM tasks can be expected to drain employees' resources, which may consequently degrade their creative thoughts. Moreover, we believe that the shift in focus from one activity to another to meet these ESM-related demands are likely to increase the level of psychological fatigue, induce disconnect from work-related tasks, and impede the creative flow of the employee. Therefore, we argue that the socio-instrumental use of ESM will adversely impact employee creativity through the mechanism of psychological transition. Hence, we hypothesize:

H4: The positive relationship between the extent of the socio-instrumental use of ESM and employee creativity will be mediated by psychological transitions.

Promotion-focused employees are eager to attain desirable outcomes through interaction with others (i.e., instrumental and social) (Arazy & Gellatly, 2012; Ali-Hassan et al., 2015). In fact, when the degree of

advancement center is high, such employees are especially dedicated to attaining positive results, such as socialization (Liang et al., 2013). They may likewise be bound to accept that instrumental help and socialization gives them a chance to extend their resources, aptitude, and social circles, along with the addition of earning trust and regard among their colleagues (Rhee & Choi, 2016). Interruption overload and psychological transition fit well with such employees because these are aligned with their desire for reputation and status in the workplace (Koopman et al., 2015). This fit is crucial because promotion-focused employees drive the socio-instrumental activities that suit their regulatory orientation (Arazy & Gellatly, 2012). Accordingly, promotion-focused employees are more likely to encounter interruptions while at work. It is, therefore, plausible that as an employee's promotion focus increases, ESM-related interruptions (namely, socio-instrumental ones) tend to be more influential, causing higher interruption overload and psychological transition.

Therefore, we propose the following hypotheses:

H5a: The positive relationship between the extent of the socio-instrumental use of ESM and interruption overload is stronger in the case of promotion-focused employees.

H5b: The positive relationship between the extent of the socio-instrumental use of ESM and the psychological transition is stronger for promotion-focused employees.

Conversely, prevention-focused employees are more concerned about personal security and safety and are sensitive to the negative outcomes (Arazy & Gellatly, 2012; Liang et al., 2013). In fact, where promotion-focused employees may regard interaction visibility as opportunities for personal gains and success, their prevention-focused counterparts may view ESM platforms' open and public nature as increasing the salience of their security and safety concerns (Arazy & Gellatly, 2012). They are thus more likely to be worried about their job performance and, therefore, display more reserved behavior at the workplace (Koopman et al., 2015). Given the nature of ESM platforms, such open communication may evoke feelings of risk for the prevention-focused employees, as they are particularly sensitive to the informational power loss embedded in privately held knowledge (Arazy & Gellatly, 2012). Moreover, if their communications become visible, such employees may then feel anxious regarding the possible exposure of their deficiencies and incompetence should they share irrelevant knowledge, thereby opening themselves to interpersonal conflict (Arazy & Gellatly, 2012). Therefore, as their prevention focus increases, these employees may tend to avoid ESM usage, leading to low ESM-related interruptions (namely, socio-instrumental) and, consequently, lower interruption overload and psychological transition. Accordingly, we propose the following hypotheses:

H6a: The positive relationship between the extent of the socio-instrumental use of ESM and interruption overload is weaker in the case of prevention-focused employees.

H6b: The positive relationship between the extent of the socio-instrumental use of ESM and psychological transition is weaker in the case of prevention-focused employees.

4. Data and methods

4.1. Data

We designed a survey questionnaire to collect the data for our proposed model. We collected the data from the eastern region of China, which is the most developed region in the country (Moody's Analytics, 2019). The study participants were Chinese ESM users employed by various companies in China. Due to various social and political circumstances, ESM has become an effective option for companies in China to manage the challenges of fragmented internal business communication (CNNIC, 2019). China has witnessed a massive rise in ESM use during recent years, with many companies adopting it as a cost-effective communication tool (CNNIC, 2019). We approached 78 companies

regarding this study, of which 34 agreed to participate. The managers of different departments in these companies discussed the purpose of the investigation and assured employees that the data collected would only be used for educational purposes and would be kept confidential. Before conducting the survey, a back-to-back translation method was used to ensure the integrity of the questionnaire when translated from English to Chinese (Brislin, Lonner, & Thorndike, 1973). A panel of professionals was then invited to review the survey items and provide comments and suggestions, which were then used to make certain linguistic-related modifications.

A total of 400 employees from different departments were invited to fill the online survey, which was circulated via email and WeChat (i.e., a mobile-based application widely used in China), without any monetary incentive provided. Independent IP addresses and valid email addresses were used to obtain valid responses. To ensure the survey's validity, the authors kept in touch with the managers of different departments by sending out waves of emails or short messages via WeChat. Initially, 339 responses were collected; however, 21 responses were dropped because of incomplete submission or answers with the same value. The final sample size of 318 was ultimately used for further analysis. Table 2 shows the demographics details of respondents.

4.2. Instrument

Existing validated scales were used to record the subjective perception of the respondents. However, some items were slightly modified to suit the research context and were measured on a 7-point Likert scale. The items used to measure each construct and the pre-validated scales referred to are presented in Appendix –A.

4.3. Control variables

In the current study, we utilized seven control variables. The first control variable was positive affect (PA), which is defined as one's propensity to experience positive emotions while interacting with others and positively take challenges in life. The second control variable was negative affect (NA), which is the opposite of positive affect, whereby one perceives the world more negatively and associates negative emotions with their relationships and surroundings. The study was controlled for both PA and NA for individual differences in dealing with ESM usage, as prior studies have shown that these two variables affect

individual performance (Luqman, Masood, Shahzad, Emran Rasheed, & Weng, 2020; Masood, Feng, Rasheed, Ali, & Gong, 2020). Next, age and gender were used as control variables since both are commonly included factors that are likely to be related to one's creativity. Existing research has identified age and gender as key demographic variables that influence work performance (Chen & Karahanna, 2018). Moreover, to capture the effect of the socio-instrumental use of ESM, the study controlled other interruptions, such as phone calls, email checking, and messaging, as suggested by previous studies (Cameron (Ali-Hassan et al., 2015; Cameron & Webster, 2013; Turel & Serenko, 2012).

5. Results

We analyzed the data in AMOS and SPSS (V21) and used Structural Equation Modeling (SEM) to estimate the measurement and structural pathways. Following the two-step method, we first used confirmatory factor analysis (CFA) to analyze the measurement model and assess the reliability and validity of the data before proceeding to study the structural path to test the proposed hypotheses (Cheah, Memon, Richard, Ting, & Cham, 2020; Homburg, Klarmann & Schmitt, 2010).

5.1. Common method bias (CMB)

Since we collected cross-sectional data through a single instrument, common method bias (CMB) may have been present in the responses (Podsakoff et al., 2012). To check for the potential threat of CMB, a multipronged approach was used in the study. First, the questionnaire was designed to try to reduce CMB at the respondent-level. For this purpose, one reverse item was used to secure respondents' attention while responding to the survey. Second, Harman's single-factor test was used to assess the nine conceptual variables in the model. This method did not reveal any CMB issue as a single factor could explain only 23.8% of the total variance, significantly lower than the maximum limit of 50% (Podsakoff et al., 2012). Third, we used the CFA-marker technique to examine the possibility of CMB (William et al., 2010). This technique includes five models and implies the following conditions: (a) If Method-C does not fit significantly better than the baseline model, there is no evidence of shared CMB between the indicators of substantive variables and the latent marker variable, (b) If Method-U does not fit significantly better than the model-C, CMB is the same for all the indicators, and (c) If Method-R is significantly different from model-C or Model-U, it shows the presence of CMB among the substantive variables. The results of the CFA-marker test in the present study, as presented in Table 3, confirmed that CMB was not an issue.

Table 2
Demographics of Respondents.

Category		Frequency	Percentage (%)
Gender	Male	154	48.5
	Female	164	51.5
Age (years)	18–25	128	40.2
	26–30	95	29.8
	31–35	68	21.3
	36–40	27	8.40
Education	High School or Below	39	12.3
	College	120	37.7
	University	159	50.0
Designation	Non-Managerial Employees	157	49.4
	Manager	127	39.9
	Senior/ Executive Manager	34	10.7
Job Tenure/ Experience	<1 year	29	9.11
	1–2 years	105	33.0
	2–3 years	112	35.2
	3–4 years	55	17.3
	4–6 years	17	5.34
Experience using ESM	<1 year	79	23.8
	1–2 years	104	32.7
	2–3 years	102	32.0
	3–4 years	33	10.3

Table 3
Model Fit Indices and Model Comparison for CFA Model with Marker Variable.

Model	χ^2 (df)	CFI	RMSEA (90% CI)	LR of $\Delta \chi^2$	Model Comparison
CFA with Marker	1910.1 (764)	0.924	0.074 (0.070-0.074)		
Baseline	1881.8 (789)	0.928	0.072 (0.068-0.075)		
Method-C	1868.5 (788)	0.929	0.072 (0.078-0.085)	13.4, df = 6, p = 0.0146*	Vs. Baseline
Method-U	1779.5 (756)	0.934	0.072 (0.068-0.076)	88.9, df = 31, p = 0.087	Vs. Method-C
Method-R	1780.5 (771)	0.935	0.071 (0.077-0.084)	0.99, df = 17, p = 0.994	Vs. Method-U

Note: CFA = confirmatory factor analysis, CFA = comparative fit index, RMSEA = root mean square error of approximation, LR = Likelihood ratio test, U = unconstrained, C = constrained, R = restricted.

5.2. Measurement model

We evaluated the measurement model by testing the validity and reliability of the constructs. Table 4 presents the factor loading, combined reliability (CR), and average variance extracted (AVE). All factor loading values were in the range of 0.66–0.89, thereby exceeding the threshold limit of 0.6 (Carmines & Zeller, 1979). The AVE values were between 0.59 and 70, higher than the suggested cut-off of 0.5 (Fornell & Larcker, 1981). The CR values ranged from 0.81 to 0.95, similarly higher than the recommended threshold of 0.7. These results show that the model possessed good convergent validity. Next, to determine discriminant validity, we evaluated pair-wise correlations and the square root of AVE (Fornell & Larcker, 1981). The highest correlation between the constructs was 0.57, with the suggested value being<0.71 (Podsakoff, MacKenzie, & Podsakoff, 2012). Furthermore, the square roots of AVE were greater than the respective correlations. Table 5 presents the correlations as off-diagonal elements with the square roots of AVE in the diagonal position. Finally, the heterotrait-monotrait (HTMT) method was also used to assess the discriminant validity, in concordance with recent recommendations (Henseler et al., 2015). Since the HTMT values were below the threshold value of 0.85, the discriminant validity was reaffirmed (Table 6).

Additionally, the measurement model returned a good model fit with chi-square (χ^2) by degree of freedom (χ^2/df) = 1.72, "goodness of fit index" ($GFI > 0.9$) = 0.99, "adjusted goodness of fit index" ($AGFI > 0.9$) = 0.98, "normed-fit index" ($NFI > 0.9$), = 0.92, "incremental fit index" ($IFI > 0.9$) = 0.93, "Comparative-fit index" ($CFI > 0.9$) = 0.97, and "root mean square error of approximation" ($RMSEA < 0.1$) = 0.05. The values in brackets represent the recommended cut-offs, as discussed by prior studies (Talwar et al., 2020)

5.3. Structural model

Fig. 2 represents the results of the structural path analysis. The structural model returned adequate fitness indices (χ^2/df = 1.72, GFI = 0.99, $AGFI$ = 0.98, NFI = 0.92, IFI = 0.96, CFI = 0.98 and $RMSEA$ = 0.05). The tested hypotheses posited that the effect of the socio-instrumental use of ESM on ESM-related exhaustion and employee creativity would be mediated by interruption overload and psychological transition. The Sobel-mediation test (Baron & Kenny, 1986) was used to test the hypothesized mediation effects. The results, presented in Tables 7 and 8, indicate that interruption overload mediates the association of the socio-instrumental use of ESM with ESM-related exhaustion (t = 5.17, $p < 0.01$), as proposed by H1, while psychological transition mediates the association of the socio-instrumental use of ESM with ESM-related exhaustion (t = 3.10, $p < 0.01$), as proposed by H2. Furthermore, interruption overload was found to mediate the association of socio-instrumental ESM use with employee creativity (t = -5.30,

$p < 0.01$), as proposed by H3, and psychological transition was shown to mediate the association of the socio-instrumental use of ESM with employee creativity (t = -6.50, $p < 0.01$), as proposed by H4. Thus, all the proposed mediating hypotheses were supported. The model further explained 44.6% variance in interruption overload, 31% variance in psychological transition, 42.1% variance in ESM-related exhaustion, and 29.8% variance in employee creativity.

5.4. Moderating role of promotion and prevention-focus of employees

The study also tested the moderating effect of promotion and prevention-focus of employees on the relationship of the socio-instrumental use of ESM with interruption overload and psychological transition, respectively. H5a, positing that promotion-focus strengthens the relationship between socio-instrumental use of ESM and interruption overload, was not supported by the results ($\gamma = 0.01$, $p > 0.05$). In comparison, H5b, which posited that promotion-focus strengthens the relationship between the socio-instrumental use of ESM and the psychological transition, was supported by the result ($\gamma = 0.202$, $p < 0.01$). The results thus show partial support for H5.

In addition, H6a, proposing that prevention-focus of employees weaken the relationship between the socio-instrumental use of ESM and interruption overload, was not supported ($\gamma = -0.07$, $p > 0.01$). However, H6b, positing that prevention-focus of employees weakens the relationship between the socio-instrumental use of ESM and the psychological transition, was supported ($\gamma = -0.120$, $p < 0.05$), thereby revealing partial support for H6. The moderating effect of promotion and prevention-focus of of employees was plotted with standard deviation (+1SD/-1SD) to indicate the effect of a high versus low level of each, as presented in Fig. 3 a-b.

6. Discussion

The current study examined the conceptual model comprising ESM usage-related variables, namely, the socio-instrumental use of ESM, interruption overload, psychological transition, ESM-related exhaustion, employee creativity, promotion-focus of employees, and prevention-focus of employees. We formulated the relationships among the identified variables based on a dual theoretical framework, COR theory and RFT, and proposed two research questions.

RQ1 inquired about how the conservation of resources can help explain the negative effects of ESM usage in the workplace. To address this question, we examined the mediating effect of interruption overload and psychological transition on the relationship of the socio-instrumental use of ESM with ESM-related exhaustion and employee creativity, respectively (H1 to H4). The results revealed that both interruption overload and psychological transition mediate the effect of the socio-instrumental use of ESM on both ESM-related exhaustion and employee creativity. The total effect size of the socio-instrumental use of ESM on exhaustion ($\beta = 0.50$) and employee creativity ($\beta = -0.54$) was significant and large. This significant effect size reveals that ESM use for socio-instrumental purposes during working hours drains employees' energy and enthusiasm about suggesting radically new ways of doing things at work due to the loss of resources, such as time and energy. Moreover, the mediating effect of interruption overload and psychological transition were in the anticipated direction. Thus, interruption overload mediated the relationship in positive ($\beta = 0.36$) and negative ($\beta = -0.39$) directions with almost the same magnitude across both outcomes, namely, ESM-related exhaustion and employee creativity. Similarly, psychological transition mediated the relationship in positive ($\beta = 0.49$) and negative ($\beta = -0.28$) directions but with quite a different magnitude across the two outcomes. These results are in consonance with the previous extended literature discussing the adverse effect of interruption and psychological transition on employees embedded in ESM networks (e.g., Cao et al., 2018; Luqman et al., 2017; Maier et al., 2015; Al-Emran et al., 2018; Edwards & Rothbard, 2000; Mao et al.,

Table 4
Reliabilities and Factor Loadings.

Sr. #	Constructs	Mean	SD	CR	AVE	*CFA Range
1	Socio-instrumental use of ESM	4.17	1.03	0.93	0.64	0.73-0.87
2	Interruption overload	4.65	1.32	0.93	0.70	0.79-0.87
3	Psychological transition	3.96	1.12	0.81	0.68	0.82-0.83
4	ESM-related exhaustion	5.17	1.33	0.84	0.64	0.79-0.82
5	Employee creativity	2.87	1.56	0.86	0.60	0.75-0.79
6	Promotion—focus	4.32	1.46	0.95	0.67	0.73-0.89
7	Prevention-focus	3.77	1.64	0.94	0.65	0.67-0.81
8	Positive affect	3.80	1.01	0.89	0.61	0.74-0.83
9	Negative affect	3.70.	1.05	0.88	0.59	0.65-0.82

* CFA range reflects the range of loadings (lowest to highest) that the items of each scale have on their latent construct, SD = Standard deviation, CR = Composite reliability, AVE = Average variance extracted, CFA = Confirmatory factor analysis.

Table 5
Correlations and Square Root of AVE.

	1	2	3	4	5	6	7	8	9
1. Socio-instrumental use of ESM	**0.80**	0.57**	0.45**	0.46**	-0.35**	0.28**	-0.08	0.32**	0.23**
2. Interruption overload		**0.81**	0.33**	0.53**	-0.44**	0.31**	-0.10	0.37**	0.24**
3. Psychological transition			**0.82**	0.18**	-0.34**	-0.03	-0.04	0.15**	0.16**
4. ESM-related exhaustion				**0.81**	-0.39**	0.22**	0.05	0.21**	0.20**
5. Employee creativity					**0.77**	-0.14**	-0.01	-0.15**	-0.21**
6. Promotion-focus						**0.81**	-0.29**	0.06	0.11*
7. Prevention-focus							**0.80**	0.03	-0.05
8. Positive affect								**0.78**	0.12*
9. Negative affect									**0.76**

$p^{**} < 0.01$, $p^* < 0.05$ (2-tailed).
The leading diagonal elements represent the square root of the average variance extracted (AVE).

Table 6
HTMT Factor Correlation.

	1	2	3	4	5	6
1. Socio-instrumental use of ESM						
2. Interruption overload	0.81					
3. Psychological transition	0.69	0.54				
4. ESM-related exhaustion	−0.40	−0.65	−0.43			
5. Employee creativity	0.60	0.74	0.41	−0.51		
6. Promotion–focus	0.33	0.63	−0.22	−0.29	0.62	
7. Prevention-focus	0.40	−0.25	−0.13	−0.09	0.11	−0.38

Note: HTMT = Heterotrait-Monotrait.

2016).

The results imply that employees who frequently connect with their coworkers through an ESM network to send or receive information for social purposes or for the coordination, control, planning, and evaluation of work-related tasks face more work and non-work-related interruptions than they have the energy, time, and ability to manage. The ESM-related demands, which span personal matters as well as work-related advice, suggestions, and technical assistance, become difficult to handle as they create an overload that leaves employed feeling emotionally drained, fatigued, and burned out. Furthermore, the work and non-work-related demands that the well-networked employees receive from their friends and coworkers through the ESM platform hamper their innovativeness and originality at work and dampens their ability to come up with highly creative ideas and novel ways of executing work-related tasks. At the same time, the results indicate that the employees need to take time to mentally disengage from the work at hand to respond to the plethora of work and non-work-related demands that come through the ESM network during working hours and that this transition aggravates their feeling of exhaustion and impinges negatively on their creativity and originality at work. Ultimately, the results suggest that interruption overload and psychological transition lead to both behavioral and psychological outcomes due to a depletion of employees' resources in responding to the socio-instrumental demands on ESM. This is consistent with the postulates of COR, which proposes that depletion of resources leads to emotional exhaustion and stress (Hobfoll,
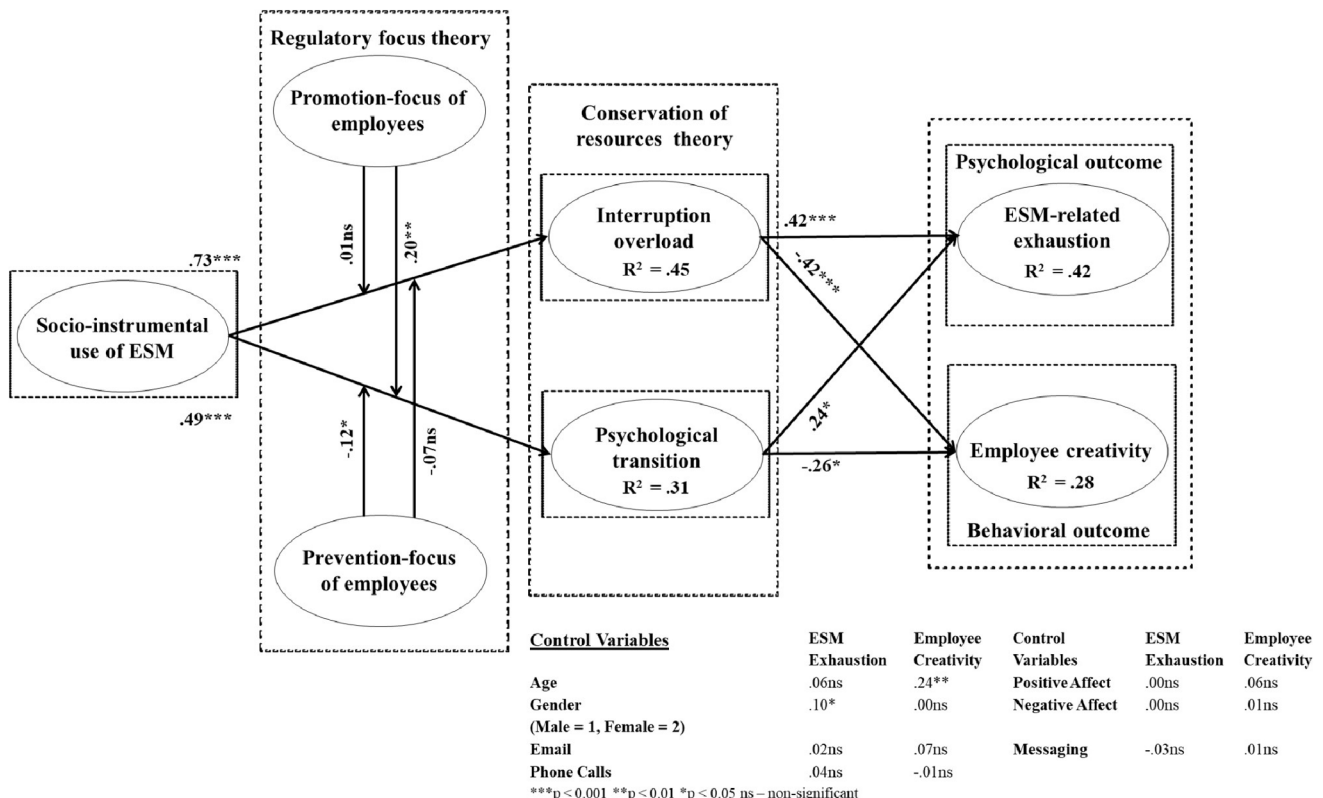

Fig. 2. Results of hypothesis testing.

Table 7
Sobel Mediation Test Results.

Path	Beta	S.E	t-value	p-value
Socio-instrumental use of ESM – interruption overload	0.73	0.04	5.87	0.0.00
Interruption overload – ESM-related exhaustion	0.42	0.07		
Socio-instrumental use of ESM – psychological transition	0.49	0.06	3.81	0.01
Psychological transition – ESM-related exhaustion	0.24	0.06		
Socio-instrumental use of ESM – interruption overload	0.73	0.05	−5.38	0.00
Interruption overload – employee creativity	-0.42	0.07		
Socio-instrumental use of ESM – psychological transition	0.49	0.06	−6.5	0.01
Psychological transition – employee creativity	-0.26	0.04		

Table 8
Total Effects and Mediated Effects.

		ESM-related Exhaustion	Employee Creativity
Socio- instrumental use of ESM	**Total Effect**	0.59	-0.54
	Through Interruption Overload	0.36	-0.38
	Through Psychological Transition	0.49	-0.28

Note: Bootstrapping method for mediation. Significant at: $*p < 0.05$, $**p < 0.01$, $***p < 0.001$.

1989).

RQ2 inquired about the role of regulatory focus in contextualizing the effects of ESM usage in the workplace. To address this question, we examined whether individual characteristics of employees, as measured through employee focus, enhance or diminish the strength of the association of using ESM socio-instrumentally with interruption overload and psychological transition, respectively. Employee focus was measured through promotion-focus of employees and prevention-focus of employees, evidencing partial support for the moderating effect of promotion and prevention-focused employees on the relationship of socio-instrumental use of ESM with interruption overload and psychological transition. The results for H5b and H6b were statistically significant, while H5a and H6a were not supported.

The positive moderating effect of promotion-focus of of employees on the relationship between socio-instrumental use of ESM and psychological transition ($\beta = 0.24$, $p < 0.001$) indicates that when employees have a higher promotion-focus, the relationship between the socio-instrumental use of ESM and psychological changes will be stronger. Consequently, these employees, who are ready to take chances at work to maximize their goal of advancement and success, will experience higher psychological transition by using ESM to interact socially with their friends and for work-related tasks with their coworkers. The reason behind this elevated transition rate is that promotion-focused employees appreciate open communication and see their network as a support mechanism for pursuing their goals of advancement, growth, and accomplishment (Arazy & Gellatly, 2012; Ali-Hassan et al., 2015; Koopman et al., 2015; Liang et al., 2013). Since they see their interactions with others as a means of achieving their desired outcomes, the promotion-focused employees are likely to be more active on the network and, thus, would be required to toggle more frequently between the task at hand and ESM-routed demands. However, contrary to our expectation (i.e., H5a), the moderating effect of promotion-focus of employees on the relationship between socio-instrumental use of ESM and interruption overload was not significant ($\beta = 0.01$, $p > 0.05$). This potentially indicates that employees who are promotion-focused are

motivated to uphold their networks and do not feel interruption overload due to the work and non-work-related demands flowing through the ESM platforms. In other words, employees who value their network-based social and instrumental relationships will not feel that the ESM-based requests are beyond their time, energy, and ability to handle.

Meanwhile, the negative moderating effect of prevention-focused employees on the relationship between the socio-instrumental use of ESM and psychological transition ($\beta = -0.14$, $p < 0.05$) implies that this relationship will be weaker when the level of prevention focus is high among employees. This finding indicates that employees who focus on completing their job tasks to increase their job security, strive to live up to their assigned responsibilities, and focus their attention on avoiding job failure will experience a lower rate of psychological transition on account of using ESM to interact with coworkers for work and non-work-related tasks. The reason behind this low transition frequency is that prevention-focused employees usually display more reserved behavior at the workplace (Koopman et al., 2015), due to which they may avoid ESM platforms that offer opportunities for open communication (Arazy & Gellatly, 2012). Consequently, these employees receive fewer ESM-routed demands that would require them to toggle from the task at hand to ESM and vice versa. However, in contrast to our proposed hypothesis (i.e., H6a), prevention-focused employees did not interact with the socio-instrumental use of ESM and interruption overload ($\beta = -0.06$, $p > 0.05$). This result is plausible considering the nature of ESM, where shared information is open and transparent to everyone, thereby inadvertently increasing risks and producing a cautious, guarded response among such employees (Arazy & Gellatly, 2012). This threatening or aversive condition would probably cause employees with a prevention focus to avoid using ESM to the extent that the interruptions would outpace their resources to handle them. The statistically insignificant results of the moderating effect of both promotion and prevention-focus of employees on the association of the socio-instrumental use of ESM and interruption overload, though defensible, are still rather confounding and need to be explored further by collecting data from employees with different socio-demographic profiles working in companies in different sectors.

In sum, the socio-instrumental use of ESM during working hours induces interruption overload and psychological transition, which are detrimental to employees' health and performance. Overall, the results suggest that the ubiquitous use of technologies at work produces negative consequences for employees' well-being, creativity, and general productivity, notwithstanding the much-debated positive outcomes of ESM use.

7. Implications, limitation, and future research direction

7.1. Implications for research

The current study offers four contributions that can help advance the research on the socio-instrumental use of ESM. First, the study responds to the research call to examine the paradox of the positive and negative impact of ESM usage (Tarafdar et al., 2015) by empirically exploring how EMS use is negatively associated with employee health and creativity. Due to this, the present study adds to the scant literature on the adverse impact of ESM use, which has been far outweighed by the scholarship's positivist agenda despite its implications for the well-being of employees and the performance of companies. The previous literature has predominantly focused on the positive side of ESM usage, such as the agility performance of an employee, social capital, innovative behavior, and creativity (Cai et al., 2018; Kuegler, Smolnik, & Kane, 2015). As our findings clearly suggest the prominence of negative aspects of ESM use, we borrow a term from social media literature (e.g., Talwar et al., 2019) to refer to this phenomenon as '*the dark side of ESM use*'. This emphasis on better understanding the negative outcomes of ESM usage, along with its positive aspects, can potentially encourage more research in the area.

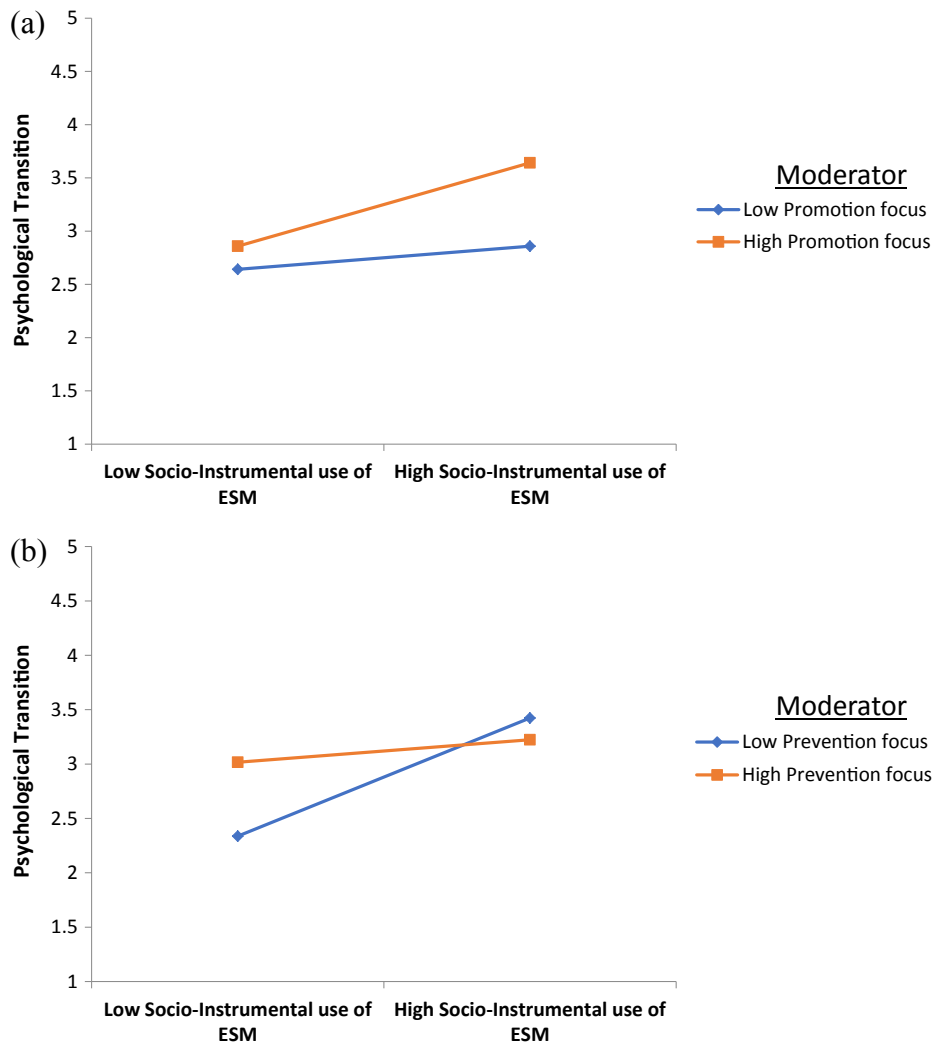Second, our research has made a significant contribution to current

Fig. 3. (a) and (b): Moderation effect of promotion- and prevention-focus of employees.

knowledge about the use of ESM by proposing and testing novel and little-known mediating mechanisms. Technology-mediated institutionalization, such as telecommuting, is very common in the existing literature; however, how the socio-instrumental use of ESM at work induces interruption overload and psychological transition has not been explored much before. The conceptualization and findings of our study can serve as the basis for future researchers to explore our model and expand it further. In turn, this advancement of our research can yield further insights that may be of use for key stakeholders in managing interruption for knowledge workers, which are adversely related to technology-mediated communication at the workplace.

Third, the study enriches the limited theory-based insights on ESM by utilizing COR theory as a theoretical framework to conceptualize *the dark side of ESM usage*. In COR theory, resource allocation and the motivation to conserve resources have been discussed as mindful decisions (Halbesleben & Wheeler, 2015). However, such a resource-based perspective has rarely received scholarly attention in the IS domain, which has called for research to explore how technologies are influencing employees' work-life (Chen & Karahanna, 2018). We responded to this call by providing novel insights based on COR theory, highlighting the fact that the frequent use of ESM for socio-instrumental purposes during working hours involves the shifting of resources across tasks to respond to the demands of coworkers embedded in the company's ESM network, which eventually consume employees' slack resources.

Fourth, our study has uncovered how the trait regulatory focus of employees can influence the extent to which ESM use is beneficial or detrimental to them. Although past studies have considered the effect of individual characteristics to discuss whether ESM affordances, such as communication visibility, are good or bad (Higgins & Pinelli, 2020), to our knowledge, the boundary conditions within which the socio-instrumental use of ESM exerts a varying effect on employees' psychological and behavioral outcomes have been overlooked. The current study reveals the insightful differences in ESM outcomes depending on employee focus, i.e., promotion and prevention-focused employees.

7.2. Implication for practice

Our study provides four important insights into practice. First, the findings suggest that the socio-instrumental use of ESM increases interruption overload and the problematic psychological transition for employees, thereby affecting their health and creativity. Managers should, therefore, not emphasize ESM usage without factoring in the reality that it is likely to compromise employee creativity and well-being by increasing their exhaustion. Since ESM usage has multiple positive outcomes, such as socialization and the development of mutual trust and socio-emotional relationships within the organization (Hwang et al., 2018; Al-Emran et al., 2018; Ding et al., 2019), it cannot be stopped altogether. However, managers should strive to draw a fine line between the judicious and injudicious use of ESM to mitigate any possible dark

side spillover. In addition, managers should encourage and train knowledge workers on when to use ESM and how to deal with interruptions. Furthermore, managers can catalyze a balanced use of ESM by (a) mentoring and advising employees to determine their goals for the work-related use of ESM platforms with a time-specific schedule, (b) encouraging employees to discuss and solve common issues related to ESM platforms, (c) promoting collaboration with coworkers by announcing new ESM features that support the free expression of opinions, and (d) making the employees aware of how and when socialization opportunities on ESM platforms can facilitate the sharing of relevant information to motivate them instead of pushing them to the brink of exhaustion at the expense of their creativity.

Second, organizations should consciously develop norms for the socio-instrumental use of ESM, given its negative relationship with exhaustion and employee creativity. Some organizational practices may have to be revised accordingly. For example, there is a low tolerance for communication delay in many organizations, and knowledge workers tend to give priority to interruptions during work hours and expect the same from other colleagues. However, our study suggests that such insistence on prompt communication may do more harm than good. Therefore, it is important to have operating norms so that technology can facilitate communication and collaboration instead of hampering others' performance (Wei, Pitafi, Kanwal, Ali, & Ren, 2020). Moreover, organizations should examine their current norms around the use of ESM during work hours and formulate regulations that promote a healthy work interface accordingly. Third, ESM technology developers should introduce a feature to manage interruptions, such as iPhone users' ability to block incoming calls under the "Do Not Disturb" mode, and aid users in differentiating between emergency and normal communications. Moreover, if a user is busy, they can send an automatic reply (e.g., I will call you later") or set up a contact reminder. Similarly, such computer-mediated communication should have an interruption management system to handle the moment-to-moment socio-instrumental requests from coworkers. ESM technology has great potential to aid employees in handling interruptions more effectively during working hours. In turn, this ESM interruption management can enable the employees to better manage how and when they want to be interrupted so that they can better use their limited cognitive and attentional resources.

Finally, organizations need to appreciate the fact that, like a personal trait, the regulatory focus of an employee is chronic and, thus, cannot be changed easily. Organizations can measure the regulatory focus of employees through scales and develop strategies that protect promotion-focused employees against overuse of ESM and prevention-focused employees against underuse of ESM. Such an approach can reduce unnecessary psychological transitions for promotion-focused employees, which can aggravate their exhaustion and erode their creativity. Similarly, strategies, such as making the ESM communication less open, can motivate prevention-focused employees to use them, thereby helping to draw out knowledge that these employees may be holding back and enhancing collaboration among coworkers.

7.3. Limitation and future research direction

Although this study offers interesting insights, its limitations must be acknowledged as they may present an opportunity for future researchers. First, although RFT is theoretically relevant to this study, we simplified the model by not including detailed constructs (such as personality), which are important for predicting the use of ESM. For example, extroverted people may have a stronger relationship of socio-instrumental use of ESM with interruption overload and psychological transition. Thus, future research should explore other boundary conditions, such as the Big Five personality traits. Second, the use of smart glasses as a device for ESM use has recently gained scholarly attention (Hein et al., 2016, 2018). These glasses have been found to be useful in collaboration (Muensterer et al., 2014) and can reduce the cognitive effort in managing office work (Hein et al., 2016). However, our study has not considered the influence of these glasses on the outcomes. Therefore, in the future, we recommend scholars examine how the use of smart glasses on ESM platforms facilitates the employees. Third, we controlled the interruption caused by phone calls, email checking, and messaging individually (Turel & Serenko, 2012; Ali-Hassan et al., 2105) to capture the impact of socio-instrumental use of ESM on employee creativity and exhaustion. However, in a real-life setting, all these factors act together. Therefore, future studies should include the aggregate effect of the use of all technological devices, such as mobile phones or private social media, in exacerbating interruption overload and transition. Fourth, the data was collected at one point in time and, thus, cannot fully capture causality among the proposed relationships. For example, the socio-instrumental use of ESM may not induce interruption overload in a short period; therefore, it may not be related to the level of exhaustion. However, our study contributes to the literature by explaining and empirically validating the theoretical relationship between the key aspects of ESM usage. Future research can build upon our findings by conducting laboratory experiments or using a longitudinal panel design for data collection and analysis. Furthermore, we collected the data for analysis through a self-report survey from a single source. This raises the potential issue of respondent bias and CMB. Although our tests revealed that CMB was not an issue in our study, we recommend that researchers collect multi-source and multilevel data to conduct replication studies using our model to provide newer insights. Finally, the data were collected from Chinese employees with a relatively high degree of power and collectivism, which may have intensified the impact of a promotion or prevention focus (Koopman et al., 2015). Therefore, the findings of our study may not be generalizable but instead may be associated with the cultural characteristics of the respondents. Thus, rather than generalizing our findings to another national context, we suggest that researchers perform a further investigation to examine how the differences in culture shape the regulatory focus of employees, which, in turn, may impact their behavior in the workplace.

Declaration of Competing Interest

The authors declared that there is no conflict of interest.

Acknowledgement

Appendix A. . Survey items

Socio-Instrumental use of ESM	1. I am often involved with coworkers for receiving or sending information for coordination, control, planning or evaluation on an ESM network	Zhong et al. (2012)
	2. I am often involved with coworkers for receiving or sending technical assistance via an ESM network	
	3. The contacts among my coworkers and I are important for my work on an ESM network	
	4. My coworkers and I are involved with each other for work related advice and suggestion on an ESM network	

(*continued*)

Interruption overload	5. I am well-acquainted personally with my coworkers via an ESM network 6. I talk with coworkers about things beyond work via an ESM network 7. I consult my coworkers for personal matters via an ESM network 8. My coworkers and I build good friendships with each other via an ESM network During my working time, 1. I have more work and non-work-related interruptions than I have energy to deal with 2. I have more work and non-work-related interruptions than I can handle 3. I have more work and non-work-related interruptions than I have time to deal with 4. Work and non-work-related interruptions take up more energy than I have 5. The number of work and non-work-related interruptions I receive exceed my ability to handle them	Chen & Karahana (2018)
Psychological transition	1. Work and non-work-related interruptions during my working time, typically take me some time to stop thinking about work 2. Work and non-work-related interruptions during my working time, typically take me some time to mentally disengage from work	Chen & Karahana (2018)
Employee creativity	1. Innovativeness is a must in my work 2. I am a good source of highly creative ideas 3. I demonstrate originality in my work 4. I suggest radically new ways of doing things at work	Rhee &Choi (2016)
ESM-related exhaustion	1. I feel emotionally drained from my work 2. I feel emotionally fatigued because of the demands of my job 3. I feel burned out from my work	Schaufeli et al. (1995)
Promotion- focus of employees	1. I take chances at work to maximize my goal for advancement 2. I tend to take risks at work to achieve success 3. If I had an opportunity to participate in a high-risk, high-reward project I would take it 4. If my job did not allow for advancement, then I would likely find a new one 5. I focus on accomplishing job tasks that will further my advancement 6. A chance to grow is an important factor for me when looking for a job 7. I spend great deal of time envisioning how to fill my aspirations 8. My priorities are impacted by a clear picture of what I aspire to be 9. At work I am motivated by my hopes and aspiration (Ideals)	Koopman et al. (2015)
Prevention- focus of employees	1. I concentrate on completing my work tasks correctly to increase my job security 2. At work, I am often focused on accomplishing task that will support my need for security 3. Job security is an important factor for me in any job search 4. At work, I focus my attention on completing my assigned responsibilities 5. Fulfilling my work duties is very important to me 6. At work, I strive to live up to the responsibilities and duties given to me by others 7. I do everything I can to avoid loss at work 8. I focus my attention on avoiding failure at work 9. 1 am very careful to avoid exposing myself to potential losses at work	Koopman et al., 2015

Appendix B. . Cross-loadings

	Items	1	2	3	4	5	6	7
Prevention- focused employees	PR1	**0.900**	0.038	-0.059	0.011	0.002	-0.021	-0.054
	PR2	**0.862**	-0.038	-0.102	0.037	-0.024	0.016	-0.063
	PR3	**0.860**	0.041	-0.109	0.027	0.017	-0.041	-0.027
	PR4	**0.847**	-0.014	-0.015	0.032	0.026	-0.050	-0.026
	PR5	**0.809**	-0.031	-0.072	0.072	0.007	-0.212	-0.022
	PR6	**0.805**	-0.062	-0.021	-0.007	-0.026	0.110	-0.011
	PR7	**0.784**	-0.065	-0.037	0.018	-0.053	0.147	-0.025
	PR8	**0.774**	-0.062	-0.187	0.033	0.017	-0.042	-0.092
	PR9	**0.735**	-0.014	-0.096	-0.052	-0.004	-0.103	-0.174
Interruption overload	IO1	-0.088	**0.872**	0.139	0.234	0.085	0.110	0.089
	IO2	-0.079	**0.859**	0.120	0.328	0.122	0.068	0.042
	IO3	-0.024	**0.854**	0.113	0.280	0.040	0.081	0.146
	IO4	-0.044	**0.824**	0.111	0.158	0.105	0.088	0.067
	IO5	0.030	**0.814**	0.022	0.213	-0.014	0.120	0.144
	IO6	-0.052	**0.792**	0.124	0.180	0.133	0.067	0.025
Promotion- focus of employees	PF1	-0.121	0.085	**0.826**	0.134	0.082	-0.001	0.137
	PF2	-0.108	-0.023	**0.804**	-0.119	0.106	0.045	0.255
	PF3	-0.133	0.146	**0.793**	0.130	0.065	0.021	0.197
	PF4	-0.122	0.098	**0.776**	-0.061	0.143	-0.028	0.221
	PF5	-0.160	0.213	**0.712**	-0.129	-0.055	0.083	0.320
	PF6	-0.054	0.114	**0.855**	0.057	-0.020	0.030	0.114
	PF7	-0.085	0.159	**0.824**	-0.010	0.011	0.021	0.159
	PF8	-0.160	0.127	**0.799**	-0.004	-0.004	0.017	0.098
	PF9	-0.172	0.147	**0.792**	-0.023	0.029	0.012	0.213
Socio-instrumental use of ESM	SIU1	-0.209	0.106	0.152	**0.871**	0.077	0.074	-0.044
	SIU2	0.201	0.194	0.075	**0.865**	0.107	0.066	0.016
	SIU3	-0.109	0.178	0.073	**0.860**	0.001	0.031	-0.023
	SIU4	-0.212	0.166	0.017	**0.857**	0.085	0.076	0.070
	SIU5	0.102	0.332	0.068	**0.843**	0.183	0.060	0.135
	SIU6	-0.136	0.294	0.143	**0.779**	0.093	0.109	0.040

(*continued*)

	Items	1	2	3	4	5	6	7
	SIU7	-0.101	0.367	0.130	**0.777**	0.173	0.132	0.119
	SIU8	-0.102	0.412	0.065	**0.773**	0.166	0.151	0.085
Employee	EC1	0.206	-0.261	0.001	-0.039	**0.791**	-0.052	-0.001
creativity	EC2	0.201	-0.216	-0.030	-0.050	**0.783**	-0.148	-0.081
	EC3	0.201	-0.180	-0.006	-0.083	**0.781**	-0.134	-0.110
	EC4	-0.061	-0.084	-0.053	-0.045	**0.751**	-0.032	-0.010
ESM-related exhaustion	WE1	0.265	0.277	0.060	0.115	0.144	**0.823**	0.055
	WE2	0.197	0.289	0.105	0.108	0.036	**0.794**	0.061
	WE3	0.237	0.278	0.098	0.060	0.184	**0.790**	0.056
Psychological	PT1	-0.013	0.185	-0.020	0.049	0.306	0.065	**0.831**
transition	PT2	-0.048	0.191	-0.053	0.070	0.287	0.055	**0.820**

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 7 iterations.

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