

A loose hat on the organization's head: cyberloafing among knowledge workers embedded in non-knowledge-intensive organizations

Ahmadreza Karimi Mazidi and Fariborz Rahimnia
*Department of Management, Faculty of Economics and Administrative Sciences,
Ferdowsi University of Mashhad, Mashhad, Iran*

Abstract

Purpose – Knowledge workers thrive in environments that match the intensity of their expertise. When assigned to non-knowledge-intensive roles, these individuals may exhibit counterproductive behaviors, such as cyberloafing. This research investigates job embeddedness as a contextual factor shaped by workplace alignment, integrating the theory of interpersonal behavior (TIB) with job embeddedness theory (JET) to develop a unified conceptual framework. The primary objective is to examine how embedded knowledge workers respond behaviorally when employed in organizations perceived as misaligned with their professional standards.

Design/methodology/approach – A multi-wave longitudinal investigation was conducted with 414 public-sector knowledge workers. Structural equation modeling (SEM) and hierarchical moderated multiple regression (HMMR) were employed to test the research model.

Findings – The results indicate that among embedded knowledge workers, person–job and person–organization misfits predict cyberloafing via sequential mediators. Additionally, moral justification significantly moderated the link between intention to cyberloaf and actual behavior. Findings suggest that knowledge workers unable to exit low-alignment environments may adopt cyberloafing as a self-regulatory coping mechanism to preserve identity coherence.

Originality/value – Like a loose hat ill-suited to its wearer, the current research illuminates how embedded knowledge workers in non-knowledge-intensive organizations (NKIOs) experience misfits that drive cyberloafing. Combining TIB and JET to explore sequential mediation mechanisms and a boundary condition, this investigation empirically reframes cyberloafing, exposing a hidden cost of poor fit.

Keywords Knowledge worker, Job embeddedness, Overqualification, Misfit, Moral justification, Cyberloafing
Paper type Research article

1. Introduction

The Persian proverb “*This hat is too loose for this head*” (Zolfaghari, 2005) aptly captures the experience of knowledge workers whose skills remain underutilized. While organizations often hire such workers with high expectations of productivity, misalignment between individual competencies and organizational roles can lead to diminished performance (Nair and Vohra, 2010). In this context, the proverb metaphorically reflects an organizational mismatch that may give rise to counterproductive behaviors, most notably cyberloafing (Sheikh *et al.*, 2019). The current research aims to provide a novel theoretical framework for understanding such deviant behaviors under conditions of misfit, with a specific focus on knowledge workers embedded in incongruent roles and environments.

Cyberloafing—also referred to as “*hidden idleness*” (Karimi Mazidi *et al.*, 2021, p. 1708) or “*empty labor*” (Paulsen, 2015, p. 351)—has become an increasingly visible form of workplace disengagement (Lim and Teo, 2024). Initially defined as the misuse of organizational internet resources during work hours at the workplace (Lim, 2002), the concept has since expanded to include the use of personal devices for nonwork purposes, both at the workplace and while working remotely (Karimi Mazidi *et al.*, 2021; Zhong *et al.*, 2022). This broader interpretation has gained relevance amid the rise of hybrid work models (Amponsah-Tawiah *et al.*, 2023) and remote work arrangements (Dewe, 2022), particularly following the COVID-19 pandemic. Today, cyberloafing is broadly defined as any internet-



based personal activity during work hours, as exemplified by [Khorakian et al. \(2024\)](#) and [Koay et al. \(2022\)](#), prompting new inquiries into its prevalence, purpose, and impact across various occupational settings.

Although its conceptual boundaries have evolved, cyberloafing remains normatively ambiguous ([Tandon et al., 2022](#)). While some scholars emphasize the resource-draining effects of this behavior (e.g. [Rahimnia and Karimi Mazidi, 2015](#)), others highlight potential benefits, such as short-term recovery, mental relief, or informal learning (e.g. [Andel et al., 2019](#)). [Van Doorn's \(2011\)](#) typology contributes further clarity by distinguishing between the form (online practices) and function (intended outcome) of cyberloafing. Building on this discourse, the present investigation argues—consistent with [Rahman et al. \(2022\)](#)—that the meaning and consequences of cyberloafing are highly contingent on job and organizational fit. In organizations marked by misalignment, cyberloafing often reflects systemic inefficiency rather than isolated misconduct ([Henle, 2024; Lim and Teo, 2024](#)), with its purpose and attainment shaping distinct cyberloafing activities and behaviors ([van Doorn, 2011](#)).

Given this link between misfit and dysfunction, the present research focuses on a largely overlooked population: knowledge workers embedded in NKIOs. Despite being highly qualified and professionally ambitious, these individuals often feel overqualified or alienated due to two key types of misfit: person–job misfit, which occurs when job demands fall short of an employee's skills ([Pan and Hou, 2024](#)), and person–organization misfit, which arises from misalignment in values, goals, or expectations between the worker and the institution ([Edwards, 2008](#)).

These misfit conditions help explain why, within such contexts, cyberloafing is unlikely to serve constructive purposes (e.g. brief recovery from a high workload). Nor can it be dismissed as mere internet addiction, given that online connectivity is integral to knowledge work. Instead, it signals a deeper form of cognitive and emotional disengagement from the organization.

This mental withdrawal is particularly problematic because cyberloafing is a known source of distraction ([Lim and Chen, 2012](#)), whereas knowledge work requires sustained attention and cognitive presence ([Spira and Feintuch, 2005](#)). Despite this contradiction, research on cyberloafing among knowledge workers remains limited. Although several studies have addressed cyberloafing in knowledge-intensive contexts ([Aghaz and Sheikh, 2016; Jian, 2013; Qian and Jiang, 2024; Ross, 2018; Zahmat Doost and Zhang, 2024](#)), few have explored the unique challenges faced by knowledge workers situated within NKIOs. Moreover, while prior studies suggest that traits such as higher education may predispose employees to cyberloafing (e.g. [Lim and Teo, 2024](#)), no unified framework currently explains how structural and psychological misfits shape these behaviors in non-knowledge-intensive environments.

To address these empirical and theoretical gaps, the present investigation draws on two complementary frameworks. TIB ([Triandis, 1977](#)) explains how specific psychological constructs shape behavioral intention and actual behavior. The first construct involves attitudes, particularly perceptions of work as meaningless or unfulfilling ([Jia et al., 2013; Page, 2015; Paulsen, 2015; Usman et al., 2021](#)). Tasks viewed as pointless or socially irrelevant are more likely to provoke disengagement from work ([van der Deijl, 2024](#)).

The second construct addresses social factors, such as organizational disidentification ([Bolton et al., 2012; Li et al., 2010; Liu et al., 2021; Soral et al., 2020](#)), which is a psychological detachment from the organization stemming from misaligned values and norms ([Oliveira and Cabral Cardoso, 2018](#)). The third construct, facilitating conditions, includes moral justification ([Hadlington et al., 2021; Koay et al., 2022; Zhang et al., 2019](#)) or the cognitive reframing of questionable behaviors as contextually acceptable ([Farasat and Azam, 2022](#)).

This conceptual triad can be illustrated through the example of a knowledge worker who perceives their job as lacking social or personal value (i.e. meaningless work) and sees little alignment with the organization's mission (i.e. organizational disidentification). In such cases, the worker might think: “If they don't value my contribution, why shouldn't I use this time for

something that matters to me?”—a line of reasoning that reflects psychological disengagement and morally justified withdrawal.

Building on this psychological foundation, JET (Mitchell *et al.*, 2001) explains how poor fit with one's job (Andel *et al.*, 2022; Cheng *et al.*, 2020; Khan *et al.*, 2022; Zhang *et al.*, 2019) and organization (Chen *et al.*, 2020; Kluemper *et al.*, 2016; Rahman *et al.*, 2022) can lead to deviant or withdrawal behaviors. While TIB accounts for the internal motivational and cognitive mechanisms behind cyberloafing, JET sheds light on the external situational constraints that hinder exit from misaligned roles. Knowledge workers, despite feeling professionally misplaced, may remain in such environments due to social obligations, relational ties, or limited alternative opportunities. In these cases, they may disengage through more passive forms of withdrawal, such as cyberloafing, rather than seeking employment elsewhere.

Together, TIB and JET offer a comprehensive framework for understanding cyberloafing as a coping mechanism rather than simply a form of noncompliance. This integrative view is particularly relevant for knowledge workers embedded in NKIOs, where psychological misalignment and structural entrapment often coexist.

To empirically examine these dynamics, the present investigation focuses on the public banking sector—specifically the headquarters of national banks—where IT and computer professionals are often assigned routine tasks that do not fully engage their expertise. Knowledge-intensive environments typically involve complexity, uncertainty, and a demand for creative problem-solving (Alvesson, 2001, 2004; Nair and Vohra, 2010). These conditions require the adaptive application of specialized knowledge. In contrast, public banks operate within structured, hierarchical systems where such complexity is largely absent, making this setting a compelling context for studying cyberloafing among underutilized knowledge workers.

While the research is situated in this sector, its insights are transferable to other low-knowledge industries where similar misalignment exists. A growing number of studies highlight the rise of cyberloafing among knowledge workers (e.g. Nair and Vohra, 2010; Ross, 2018). Separately, a distinct line of research documents an increase in burnout among these employees, especially those who feel highly skilled and overqualified (Aghaz and Sheikh, 2016; Tymon and Stumpf, 2003). This issue is further compounded by macroeconomic trends: as higher education continues to expand rapidly, many skilled professionals accept lower-level jobs due to limited employment alternatives (Karimi Mazidi *et al.*, 2021). Overqualification has become increasingly normalized in several advanced and emerging labor markets (Vandeplas and Thum-Thysen, 2019).

These dynamics shape the central question of this research: What drives cyberloafing among knowledge workers who perceive themselves as highly skilled yet underutilized within NKIOs?

To address the central question, the remainder of this article is organized as follows: Section 2 reviews the literature on cyberloafing and presents the conceptual framework and hypotheses; Section 3 outlines the methodology and reports the results across the three empirical studies; Section 4 discusses the findings and elaborates on the theoretical and practical implications, limitations, and directions for future research; Section 5 concludes the article by summarizing the key insights.

2. Framework of the research

2.1 Theoretical grounding: incorporating two theories

This research is grounded in Triandis' TIB, first introduced in 1977, which addresses the socio-psychological mechanisms underlying behavioral intention through constructs such as attitude, affect, and social factors. Behavior emerges from the interaction of intention and habit within a set of facilitating conditions (Moody and Siponen, 2013). The model emphasizes attitude (e.g. meaningless work) and social factors (e.g. organizational disidentification) as

primary drivers of intention. Perceived overqualification is positioned as an antecedent to attitudinal responses, while person–organization misfit informs the social dimension. Among facilitating conditions, moral justification is examined as a moderating variable. While TIB has been extensively utilized to study personal internet use (e.g. [Huma et al., 2017](#); [Moody and Siponen, 2013](#); [Pee et al., 2008](#); [Wang et al., 2013](#)), few studies have applied JET in this context. TIB primarily addresses internal (encompassing cognitive, emotional, social, and habitual) antecedents of behavior ([Moody and Siponen, 2013](#)), whereas JET incorporates external (i.e. job-related) antecedents ([Karimi Mazidi et al., 2021](#)).

JET conceptualizes employee retention ([Darrat et al., 2017](#)) in terms of switching costs, encompassing dimensions of fit, link, and sacrifice ([Mitchell et al., 2001](#)). The model distinguishes between on-the-job (organizational) and off-the-job (community) embeddedness ([William et al., 2014](#)), with this research focusing exclusively on the organizational dimension. Fit refers to the perceived alignment between an employee and the workplace; link captures the strength of social and occupational connections; and sacrifice denotes the anticipated loss incurred by leaving the organization ([William et al., 2014](#)). The present investigation emphasizes the negative aspects of fit (i.e. perceived overqualification and person–organization misfit) and link (i.e. meaningless work and organizational disidentification).

TIB, which integrates the Theory of Reasoned Action ([Fishbein and Ajzen, 1975](#)) and the Theory of Planned Behavior ([Ajzen, 1991](#)), provides a comprehensive framework for understanding workplace deviance through psychological and social pathways ([Moody and Siponen, 2013](#)). It is particularly well-suited for analyzing dysfunctional outcomes in adverse environments ([Karimi Mazidi et al., 2021](#)) while also aligning with JET's treatment of poor fit and weak ties as antecedents of withdrawal behavior. The integration of both models reveals overlapping negative antecedents of deviant intent, offering a dual-theoretical lens on workplace adversity. These combined constructs are proposed to predict the onset of counterproductive behavior, particularly in contexts where the organizational goals are misaligned with the employee expectations.

Despite a broad range of theories proposed to detect and explain cyberloafing (as outlined by [Karimi Mazidi et al., 2021](#)), no prior studies have synthesized TIB and JET to address this behavior. The current research bridges this gap by integrating their constructs to gain a better understanding of the behavioral dynamics of knowledge workers embedded in NKIOs.

2.2 Hypothesis development

2.2.1 The effect of perceived overqualification on meaningless work. Overqualification, a form of underemployment that often accompanies temporary and part-time employment, is widely considered undesirable ([Maynard et al., 2006](#)). It reflects a person–job misfit ([Zhang et al., 2019](#)), wherein an employee's skills exceed the demands of the position ([Johnson and Johnson, 2000](#)). In such contexts, work may lose its perceived value, as meaningful work typically facilitates self-expression and fosters constructive social ties ([Sánchez-Cardona et al., 2020](#)). According to JET, overqualification (i.e. adverse fit) disrupts the alignment between an individual and their role, thereby weakening relational bonds within the workplace (i.e. adverse link). This weakened link reinforces the perception that work lacks meaning ([Zhang et al., 2019](#)).

Within the framework of TIB, overqualified employees are more likely to evaluate their roles as lacking challenge or intellectual value, which leads to the development of unfavorable attitudes toward their work ([Moody and Siponen, 2013](#)). [Bochoridou and Gkorezis \(2024\)](#) argue that such appraisals result in diminished perceptions of meaningfulness. Empirical evidence supports this claim. [Nair and Vohra \(2010\)](#) found that perceived meaningfulness strongly predicts work alienation among knowledge workers. Although the direct examination of meaningless work remains limited, several studies (e.g. [Allan et al., 2023](#); [Sánchez-Cardona et al., 2020](#); [Zhang et al., 2022](#)) have investigated its inverse by linking

overqualification to reduced perceptions of work meaningfulness. Drawing on these insights, the following hypothesis is proposed:

- H1. Perceived overqualification is positively associated with meaningless work among embedded knowledge workers.

2.2.2 The effect of meaningless work on intention to cyberloaf. Negative perceptions of work meaningfulness function as attitudinal precursors to workplace deviance. Within the framework of TIB, such perceptions foster disengagement and drive behaviors like cyberloafing as attempts to reclaim autonomy or significance at work (Lieberman *et al.*, 2011). In contrast, meaningful work arises from a coherent ecosystem that encompasses task design, organizational systems, culture, and leadership (Berg *et al.*, 2013). From the standpoint of JET, the experience of meaningless work signals a weakened relational bond (i.e. adverse link) between the employee and the organization.

Among embedded knowledge workers, person–environment misfit is particularly shaped by job and organizational systems (Appel-Meulenbroek *et al.*, 2020), which can hinder motivation and trigger cognitive withdrawal (Usman *et al.*, 2021). The resulting detachment reduces work engagement and limits the capacity to contribute fully (Davenport, 2005). Moreover, according to JET, meaningless work may serve as a latent indicator of workplace ostracism, where knowledge workers perceive a sense of exclusion or disregard from their environment (Ferris *et al.*, 2008). This sense of isolation intensifies the adverse link and increases the propensity for counterproductive behavior (Darrat *et al.*, 2017). Although empirical research remains limited, prior studies (e.g. Koay, 2018; Usman *et al.*, 2021; Tan *et al.*, 2024a, 2024b) offer indirect support for this association. On this basis, the following hypothesis is proposed:

- H2. Meaningless work is positively associated with the cyberloafing intention among embedded knowledge workers.

2.2.3 The effect of person–organization misfit on organizational disidentification. Person–organization misfit occurs when the divergence between employees’ values and organizational characteristics outweighs their perceived commonalities (Brown *et al.*, 2020). Within the framework of TIB, such misalignment disrupts the individual’s self-concept, specifically the internal values and goals that regulate appropriate behavior (Bamberg and Schmidt, 2003). This erosion of self-integrity at work diminishes a knowledge worker’s psychological affiliation with the organization (Westerman *et al.*, 2022). In the context of JET, misfit fosters a hostile work climate, impeding embedded knowledge workers from experiencing a cohesive connection with their organization (Ng and Feldman, 2014).

Drawing on Schneider’s (1987) attraction–selection–attrition paradigm, sustained value incongruence, if not resolved through attrition, leads to intensified detachment. For embedded employees unable to exit, this dissonance generates persistent cognitive and emotional disidentification. When organizational norms and expectations conflict with core personal values (i.e. adverse fit), knowledge workers who are embedded prioritize their value systems over imposed organizational identities. The resulting identity strain (i.e. adverse link) weakens affective ties and reinforces disconnection. Empirical findings (e.g. Anaza, 2015; Demir *et al.*, 2015; Ng and Feldman, 2014) indirectly support this dynamic by demonstrating the role of person–organization fit in shaping identification trajectories. Based on these considerations, the following hypothesis is proposed:

- H3. Person–organization misfit is positively associated with organizational disidentification among embedded knowledge workers.

2.2.4 The effect of organizational disidentification on intention to cyberloaf. Organizational disidentification reflects a self-perceptual process in which individuals cognitively distance themselves from the organization, actively rejecting its values and identity (Elsbach and Bhattacharya, 2001). As conceptualized in TIB, such detachment

constitutes a negative social factor, signaling a disruption of interpersonal alignment in the workplace. Employees experiencing disidentification perceive a lack of social acceptance, which undermines their relational ties and weakens affective bonds (Triandis, 1977). Within JET, this erosion of social linkage reduces the sense of organizational belonging among embedded knowledge workers. When exit options are constrained, these individuals may resort to coping mechanisms such as cyberloafing to compensate for social disconnection (Bolton *et al.*, 2012; Karimi Mazidi *et al.*, 2021).

When knowledge workers identify with the organization, they establish cognitive and perceptual links to its identity (Ashforth and Mael, 1989). Unlike voluntary turnover, which is often a direct outcome of disidentification, embedded employees may engage in psychological withdrawal by redirecting attention toward digital domains (Elsbach and Bhattacharya, 2001). Disidentification, therefore, not only reflects adverse linkages but also catalyzes compensatory behaviors aimed at reclaiming agency or emotional distance. Empirical studies (e.g. König and de la Guardia, 2014; Zhou *et al.*, 2021) have offered preliminary support for this behavioral shift among disidentified employees. Based on this rationale, the following hypothesis is advanced:

- H4. Organizational disidentification is positively associated with the cyberloafing intention among embedded knowledge workers.

2.2.5 The effect of intention to cyberloaf on cyberloafing. Knowledge workers often operate with substantial autonomy and digital access, enabling them to engage frequently in cyberspace (Davenport, 2005). This autonomy reduces their concern about managerial oversight, particularly in organizations where their embeddedness stems from perceived indispensability (Aghaz and Sheikh, 2016). For such individuals, the risk of exposure to cyberloafing is diminished.

Simultaneously, the capacity to obscure cyberloafing behavior significantly facilitates the translation of intention into action (Askew *et al.*, 2014). Given that their roles inherently involve digital environments, knowledge workers can more effectively conceal deviations from assigned tasks (Alvesson, 2004). TIB posits that behavioral execution depends not only on intention (Moody and Siponen, 2013) but also on enabling conditions, including concealability in the case of deviant actions (Askew *et al.*, 2014). In parallel, JET suggests that adverse work conditions heighten the conversion of intention into behavior by removing normative constraints (Darrat *et al.*, 2017; Holtom *et al.*, 2012).

Together, these frameworks imply that when concealment is feasible and the environment remains misaligned, the likelihood of cyberloafing increases. Prior research (e.g. Askew *et al.*, 2014; Bock *et al.*, 2010; Huma *et al.*, 2017; Khansa *et al.*, 2017; Sheikh *et al.*, 2015) provides empirical support for this progression from intention to behavior. Accordingly, the following hypothesis is advanced:

- H5. The intention to cyberloaf is positively associated with actual cyberloafing among embedded knowledge workers.

2.2.6 The sequential effect of meaningless work and intention to cyberloaf as mediators. Drawing on TIB, knowledge workers assess their work based on self-perceived competencies and job relevance. When they consider themselves overqualified, they tend to devalue the significance of their roles, forming a negative attitude toward the meaningfulness of their work. This attitude increases vulnerability to cyberloafing as a compensatory behavior for reclaiming autonomy and psychological engagement. Given their digital fluency and job autonomy, the intention to cyberloaf translates more readily into actual behavior, as both the execution and concealment are feasible. From a JET perspective, this reflects an adverse person–job fit that weakens the cognitive and emotional links to meaningful work. The resulting detachment prompts a shift of engagement toward cyberspace as an alternative domain of relevance and agency.

In this context, the progression from overqualification to cyberloafing is not immediate but unfolds through a series of sequential psychological states. Specifically, perceived overqualification diminishes perceived work meaningfulness, which in turn increases the intention to cyberloaf, ultimately leading to the behavior itself. Accordingly, the following hypothesis is proposed:

- H6. Meaningless work and intention to cyberloaf sequentially mediate the association of perceived overqualification with cyberloafing among embedded knowledge workers.

2.2.7 The sequential effect of organizational disidentification and intention to cyberloaf as mediators. When person–organization misfit occurs, and dissimilarities outweigh shared values, TIB posits that knowledge workers may experience a disruption in self-concept, leading to psychological dissociation from the organization. This dissociation manifests as organizational disidentification, which weakens the sense of affiliation and fosters a disposition toward disengagement, including cyberloafing. According to JET, such an adverse fit undermines the relational links that facilitate identification with the organization. In the absence of congruence with the organizational environment, knowledge workers are more inclined to redirect their cognitive and emotional investment toward external domains, particularly cyberspace, as a form of adaptive escape.

The intention to cyberloaf is thus reinforced and more likely to translate into actual behavior, especially given the capacity to execute and conceal such actions. Within this sequence, person–organization misfit initiates psychological detachment, which heightens the intention to cyberloaf, ultimately culminating in observable cyberloafing behavior. Accordingly, the following hypothesis is proposed:

- H7. Organizational disidentification and intention to cyberloaf sequentially mediate the association of person–organization misfit with cyberloafing among embedded knowledge workers.

2.2.8 The moderating effect of moral justification. Knowledge workers may rationalize cyberloafing by referencing coworkers' similar behaviors (Lim and Teo, 2005) or through personal moral reasoning (Batabyal and Bhal, 2020). In TIB, such moral justification functions as a facilitating condition that legitimizes otherwise unproductive behaviors (Hadlington et al., 2021). These conditions remove internal or external barriers that would normally inhibit such behavior (Moody and Siponen, 2013). When cyberloafing is morally reframed as acceptable, moral constraints are diminished, thereby increasing the likelihood of converting intention into behavior.

Within the JET perspective, moral justification operates as a neutralization mechanism that reinterprets deviant actions as contextually appropriate, often in response to adverse work environments (Boiral, 2016). Knowledge workers may view cyberloafing as a proportionate reaction to workplace adversity, thus reducing personal responsibility and normalizing the behavior. As a result, moral justification is expected to strengthen the link between the intention to cyberloaf and its actual enactment. Accordingly, the following hypothesis is proposed:

- H8. Moral justification positively moderates the association of intention to cyberloaf with cyberloafing among embedded knowledge workers, such that the effect is stronger when moral justification is higher.

Building on the integrated framework of TIB and JET, a conceptual model (Figure 1) illustrates multilevel behavioral mechanisms underlying cyberloafing among embedded knowledge workers.

3. Studies in this research

According to Drucker (1994), knowledge workers are classified into two categories: technical and high-ranking. The present investigation focuses on the latter. The target population

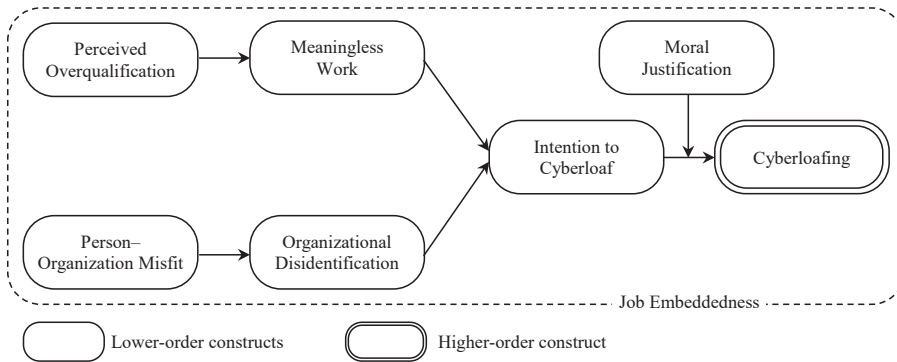


Figure 1. Proposed conceptual model. Source. Authors' own model

consisted of frontline employees in the headquarters of public banks in Iran. These individuals held advanced academic degrees (master's and doctoral levels) in computer science or IT-related fields. They performed primarily office-based administrative tasks, rather than research- or technology-driven functions. This occupational configuration rendered the issue of adverse embeddedness a relevant concern.

Two eligibility criteria guided participant selection. First, respondents were required to report directly to a supervisor, as the measurement of cyberloafing in this research relied on data obtained from matched employee-supervisor dyads. Second, respondents needed access to internet-enabled resources (e.g. personal computers or smartphones) to ensure the feasibility of cyberloafing behavior. These criteria, along with additional procedural safeguards—including respondent anonymity, voluntary participation, and the deployment of trained surveyors—supported the external validity of the research.

Eligible participants were identified using employment records from the personnel departments of target organizations. Permissions were secured from top management, followed by interviews with supervisors to verify the sampling criteria. Supervisors first agreed to participate, enabling surveyors to approach employees. Convenience sampling was conducted face-to-face, not electronically, due to the necessity of matching employee responses with supervisor assessments.

A total of 720 employees were contacted, corresponding to a respondent-to-item ratio of approximately 20:1. This high ratio accounted for anticipated attrition across multiple sampling stages. Of these, 611 employees completed the survey, resulting in a primary response rate of approximately 85%. Survey instruments employed 5-point Likert-type scales with varying anchors to minimize response complexity (Churchill, 1979) and reduce common method bias (CMB; Podsakoff *et al.*, 2012). Data collection spanned 14 months, covering the latter half of 2022 and the first half of 2023.

The research consisted of three studies designed to examine cyberloafing among embedded knowledge workers. Table 1 outlines the objectives, measured variable(s), data source(s), and timelines of each study. Study 1 captured a pure sample of embedded employees in adverse work environments, forming the empirical foundation for Studies 2 and 3. The longitudinal multi-wave design served two purposes: first, to establish time-lagged causality by ensuring that constructs such as embeddedness and moral justification were temporally stable; and second, to mitigate the influence of standard method variance and respondent attrition (Podsakoff *et al.*, 2003). This design enhanced the robustness of the moderation analysis and improved causal inference (Rindfleisch *et al.*, 2008).

Table 1. Details of the three studies in this research

Study	Measures	By	In (approximate)	To
1	Job Embeddedness	Data from employees	Wave 1: From mid-August to the end of September 2022; And Wave 2: From April to the end of June 2023 (6-month time lag)	Refine the statistical sample by retaining only embedded knowledge workers
2	Job Embeddedness; Perceived Overqualification; Person–Organization Misfit; Meaningless Work; Organizational Disidentification; Intention to Cyberloaf; Cyberloafing; Moral Justification	Data from employees and supervisors	Wave 2: From April to the end of June 2023	Estimate the structural model and examine the direct and indirect paths
3	Moral Justification	Data from employees	Wave 2: From April to the end of June 2023; And Wave 3: From August to mid-October 2023 (1-month time lag)	Estimate regression models and examine the significance of change in the moderated path over time

Source(s): Authors’ own work

3.1 Study 1

To align with the research objectives, it was essential to verify that participants were genuinely embedded in their organizations. In this study, job embeddedness was not treated as a predictor within the structural model but rather as a contextual criterion to refine the statistical sample. The primary aim of Study 1 was to identify truly embedded knowledge workers among the initially screened group. Accordingly, this study served as a filtering phase, retaining only those employees who met the embeddedness threshold for inclusion in subsequent analyses.

3.1.1 Measures and procedures. To ensure methodological rigor while maintaining respondent engagement, the study employed previously validated abridged scales that offer both conceptual breadth and operational efficiency (see Appendix). Notably, these short forms were adopted from established literature rather than developed within this research. Consistent with the study’s aim to assess job embeddedness reflectively, the global 7-item scale proposed by Crossley *et al.* (2007) was selected. This scale captures the full scope of the construct while minimizing respondent fatigue, as affirmed by its widespread application in recent empirical studies (e.g. Collins and Mossholder, 2017; Fakoor Saghih and Nosrati, 2021; Lo Presti *et al.*, 2024). Job embeddedness was measured in two waves, spaced six months apart, using the same instrument.

To refine the analytic sample, only respondents whose embeddedness levels remained stable or increased over time were retained. Individual-level changes in mean scores between Time A and Time B were examined. Given the limited number of observations per respondent (i.e. 7 items), the Wilcoxon signed-rank test—a nonparametric alternative appropriate for paired data—was conducted in SPSS (version 26), with the following hypotheses:

$$\begin{cases} H_0 : \text{Job embeddedness does not decrease over time.} \\ H_1 : \text{Job embeddedness decreases over time.} \end{cases}$$

3.1.2 Results. At a 95% confidence level, **H1** was rejected if the test significance exceeded 0.05. Based on the mean comparison results, 146 respondents demonstrated a significant

decline in embeddedness ($p < 0.05$) and were excluded from further analysis, resulting in a final sample of 465 participants (Table 2).

To validate the adverse nature of embeddedness within this refined sample, respondents in Wave 1 were asked to indicate their primary reasons for staying in their organizations. Over 67% cited the lack of viable alternative employment and concerns over economic insecurity as their main reasons for remaining. Fewer than 6% expressed intrinsic motivation related to their job or organization. These results reflect a structural disconnect between the education system and the labor market demands. They further confirm that the sample predominantly comprises knowledge workers embedded in unfavorable organizational contexts, aligning precisely with the research's core focus.

3.2 Study 2

Study 2 tested the hypothesized structural model, including both direct and mediating pathways. At Time B, data collection encompassed all study variables. Employees provided self-reported data on the antecedents (perceived overqualification and person–organization misfit), mediating constructs (meaningless work and organizational disidentification), behavioral intention (intention to cyberloaf), and the facilitating condition (moral justification). Cyberloafing behavior, as the outcome variable, was independently assessed by each participant's immediate supervisor to mitigate CMB. Although 465 participants were retained after Study 1, attrition at Wave 3 resulted in a final analytic sample of 414 matched employee–supervisor dyads. This multi-source design strengthens the validity of the findings by integrating perspectives from both subordinates and their evaluators.

3.2.1 Measures and procedures. Perceived overqualification was measured using a 4-item subscale from the perceived mismatch measure developed by Johnson and Johnson (1996), which captures surplus perceptions regarding education, talent, experience, and skills. Person–organization fit was assessed using a scale adapted from Cable and Judge (1996), which included three items reverse-scored to reflect misfit. This instrument is appropriate for measuring supplementary fit among individuals already situated within organizations (Resick et al., 2007)—or, in this case, embedded in them.

To measure meaningless work, the 4-item Positive Meaning subscale of the Work and Meaning Inventory (WAMI; Steger et al., 2012) was employed, with items reverse-coded. This subscale has been shown to offer superior discriminant validity compared to the other WAMI subcomponents and is recommended for assessing perceived work meaningfulness (Steger et al., 2013). Organizational disidentification was captured using a 3-item abridged version of the scale developed initially by Kreiner and Ashforth (2004), consistent with its application in prior studies by Gibney et al. (2011) and Zagenczyk et al. (2013).

Cyberloafing intention was measured using a 3-item scale developed by Khansa et al. (2017), while moral justification was assessed with a 4-item adaptation of Barsky's (2011)

Table 2. Job embeddedness status of respondents

	Descending embeddedness	Constant or ascending embeddedness	The reason for staying in the organization					Lacking alternative job options
			Loving the organization	Getting used to the organization	Being close to the residence	Being forced by the family	Fearing the economic pressure	
Absolute frequency	146	465	26	64	18	43	95	219
Relative frequency	23.9	76.1	5.6	13.8	3.9	9.2	20.4	47.1
Total	611 (100)		465 (100)					

Source(s): Authors' own work

measure. All survey items were translated into Persian and then back-translated into English to ensure conceptual and linguistic equivalence. A bilingual management expert reviewed the final items for clarity and cultural appropriateness. All responses were recorded using 5-point Likert-type scales ranging from “strongly disagree” (1) to “strongly agree” (5).

All constructs were assessed using established instruments, except for cyberloafing. Existing cyberloafing measures predominantly rely on self-report data, a practice increasingly questioned due to issues related to social desirability and common method variance (Podsakoff *et al.*, 2012). Recent literature has called for the development of alternative reports or objective scales to improve construct validity (e.g. Tandon *et al.*, 2022). In response, this study developed a supervisor-report measure of cyberloafing, following the three-stage scale development process of specification, estimation, and validation (Hinkin, 1995; Sarstedt *et al.*, 2019).

Although knowledge workers may be more skilled at concealing cyberloafing (Askew *et al.*, 2014; Aghaz and Sheikh, 2016), the authors believe those embedded in NKIOs are less likely to hide it, as they may use cyberloafing as a form of protest against the status quo. The methods for detecting cyberloafing were informed by prior research on supervisory systems (e.g. Blanchard and Henle, 2008; Glassman *et al.*, 2015; Rahimnia and Karimi Mazidi, 2015; Zoghbi-Manrique-de-Lara and Olivares-Mesa, 2010) and control mechanisms (e.g. Glassman *et al.*, 2015; Henle and Blanchard, 2008; Lim and Teo, 2005; Rahimnia and Karimi Mazidi, 2015; Ugrin and Pearson, 2013; Zoghbi-Manrique-de-Lara *et al.*, 2006), including the use of surveillance equipment (tracking), managerial supervision (observing), behavioral cues (feeling), and peer reporting (hearing). Incorporating instances of cyberloafing from traditional scales, eight items—two per detection method—were developed to capture cyberloafing indicators from a managerial perspective, reflecting either direct cues (as in tracking and observing components) or indirect impressions (as in feeling and hearing components). Managers rated the extent to which they had noticed these behaviors using a Likert-type scale ranging from “not at all” (1) to “extremely” (5). This approach reduced both method and response bias, particularly given the sensitive nature of the behavior and the potential limitations of participant anonymity in the context of hierarchical oversight (Karimi Mazidi *et al.*, 2021). The results of estimating and validating this newly developed scale are presented in the following section.

Covariance-based SEM (CB-SEM) was conducted in AMOS (version 26), as the large sample size and normality assumptions were met. Bootstrapping procedures with 5,000 iterations (resamples) were employed to estimate indirect effects and assess the significance of sequential mediation pathways through bias-corrected upper and lower bounds.

3.2.2 Results. Table 3 presents the Pearson correlation coefficients among the latent constructs, all of which were statistically significant at the 0.01 level. Descriptive statistics, including means and standard deviations, are also provided. Demographic analysis of the 414 qualified respondents indicated that 65.2% were male ($n = 270$), with ages ranging from 25 to 60 years ($M = 38.2$). The majority held a master’s degree (73.2%, $n = 303$). A power analysis confirmed the adequacy of the sample size for SEM, based on the least anticipated effect size of 0.295, statistical power of 0.90, and an alpha level of 0.05. The minimum required sample size was calculated to be 208 (Soper, 2019), confirming that the sample was sufficiently powered to detect the hypothesized effects.

3.2.2.1 Primary results. Although the study employed a multi-source and multi-wave design to mitigate potential CMB (Podsakoff *et al.*, 2012), a formal assessment was conducted to evaluate its presence. Exploratory factor analysis using principal component extraction revealed the emergence of eight distinct factors, with the first factor accounting for only 14.92% of the total variance, which is well below the 50% threshold proposed by Harman (1976). These findings suggest that CMB is unlikely to compromise the validity of the study’s results.

To validate the cyberloafing construct, 414 observations were analyzed using confirmatory factor analysis (CFA). Given that the recommended observation-to-item ratio for CFA is at

Table 3. Means, standard deviations, and correlations among variables ($N = 414$)

	1	2	3	4	5	6	7	8	9	10	11
1. Age	–										
2. Gender	0.12*	–									
3. Education	0.05	0.02	–								
4. Job Embeddedness	–0.01	0.03	–0.00	–							
5. Perceived Overqualification	–0.01	–0.01	0.03	0.35***	–						
6. Person–Organization Misfit	–0.02	–0.03	–0.02	0.37***	0.27***	–					
7. Meaningless Work	–0.01	0.06	–0.01	0.34***	0.41***	0.22***	–				
8. Organizational Disidentification	0.02	–0.01	–0.11*	0.37***	0.32***	0.26***	0.35***	–			
9. Intention to Cyberloaf	0.02	0.00	–0.01	0.30***	0.37***	0.23***	0.35***	0.38***	–		
10. Cyberloafing	0.05	–0.03	0.05	0.37***	0.48***	0.29***	0.37***	0.40***	0.27***	–	
11. Moral Justification	0.02	0.00	–0.07	0.21***	0.22***	0.15**	0.34***	0.27***	0.44***	0.25***	–
Mean	38.20	1.34	1.26	3.86	3.60	3.61	2.84	3.22	3.59	3.75	2.84
Standard deviation	9.50	0.47	0.44	0.68	0.77	0.76	0.78	0.76	0.90	0.65	0.95

Note(s): Gender is coded as 1 = Male, 2 = Female; Education is coded as 1 = Master's, 2 = Doctorate and above; ***Significant at $p < 0.001$; **Significant at $p < 0.01$; *Significant at $p < 0.05$; Correlations reflect measurements taken at Time B

Source(s): Authors' own work

least 5:1—and preferably 10:1 (Hair *et al.*, 1998)—the sample size exceeded the satisfactory benchmark. Three competing factorial models were estimated to validate the cyberloafing scale, comparing a single-factor model to two multifactor alternatives (Runge *et al.*, 2004). Table 4 presents fit indices for the CFA models. The Chi-square value was significant at $p < 0.001$ for all unmodified models, rendering it unsuitable for strict comparison; however, lower Chi-square values indicate better model fit. Model 1 (the baseline model), featuring an uncorrelated 4-factor structure, demonstrated a poor fit across all absolute, relative, and parsimonious indices. Model 2 (unidimensional) yielded improved absolute and relative fit metrics; however, it failed to meet the parsimonious-fit thresholds. Model 3, which posited a four-factor correlated solution (i.e. feeling, hearing, tracking, and observing), outperformed the others. This model yielded GFI = 0.98, AGFI = 0.96, CFI = 0.99, NFI = 0.98, RMSEA = 0.04, and a normed $\chi^2/\text{df}_{(14)} = 1.69$ —all within acceptable thresholds.

Additionally, the target coefficient (the ratio of Chi-square values between Models 3 and 2) was 0.15, indicating that the unidimensional model explained only 15% of the variance captured by the multifactor structure (Marsh and Hocevar, 1985). These findings confirm cyberloafing as a higher-order construct composed of four interrelated dimensions.

Discriminant validity was evaluated using the heterotrait–monotrait (HTMT) ratio. This index compares the ratio of between-trait correlations to within-trait correlations for each pair of constructs, with all inter-construct values falling below the 0.90 threshold, as shown in Table 5. These results support adequate divergence among the measured constructs (Henseler *et al.*, 2015). An overall first-order CFA further examined convergent validity and reliability, yielding fit indices of GFI = 0.88, AGFI = 0.86, CFI = 0.95, NFI = 0.89, $\chi^2/\text{df}_{(560)} = 1.76$, and RMSEA = 0.04. As reported in Table 6, all factor loadings exceeded 0.50 and were statistically significant, and the average variance extracted (AVE) for each construct was above 0.50, confirming convergent validity (Fornell and Larcker, 1981).

Composite reliability (CR) coefficients exceeded 0.70 for all constructs, confirming the internal consistency of the items loading on each one. The values for Cronbach’s α were also above 0.70, further supporting the reliability of the data. Skewness and kurtosis values for all

Table 4. Goodness-of-fit indices for alternative models of Cyberloafing

Model		χ^2	df	Parsimonious		Relative		Absolute	
				χ^2/df	RMSEA	CFI	NFI	GFI	AGFI
1	Four-factor (uncorrelated)	988.330	24	41.180	0.312	0.531	0.526	0.585	0.377
2	Single-factor	157.864	20	7.893	0.129	0.933	0.924	0.916	0.848
3	Four-factor (correlated)	23.701	14	1.693	0.041	0.995	0.989	0.986	0.965

Source(s): Authors’ own work

Table 5. Divergent validity assessment using HTMT index

	1	2	3	4	5	6	7	8
1. Job embeddedness	–							
2. Perceived overqualification	0.402	–						
3. Person–organization misfit	0.434	0.328	–					
4. Meaningless work	0.390	0.480	0.269	–				
5. Organizational disidentification	0.443	0.388	0.323	0.430	–			
6. Intention to cyberloaf	0.339	0.437	0.276	0.404	0.456	–		
7. Cyberloafing	0.411	0.545	0.338	0.418	0.467	0.309	–	
8. Moral justification	0.238	0.254	0.175	0.390	0.323	0.502	0.275	–

Source(s): Authors’ own work

variables were within ± 3 (Table 6), indicating that the data met the assumption of normality (Kim, 2013). These conditions collectively affirmed the suitability of the dataset for CB-SEM.

3.2.2.2 Main results. CB-SEM was performed using the maximum likelihood estimation method. The structural model comprised six latent constructs, each operationalized through its respective measurement model. Model fit indices indicated an acceptable overall fit to the data ($GFI = 0.89$, $AGFI = 0.86$, $CFI = 0.91$, $NFI = 0.88$, $\chi^2/df_{(182)} = 3.02$, $RMSEA = 0.07$), thereby supporting the examination of hypotheses via model parameters.

Direct effects were tested by comparing the significance of path coefficients to a threshold of 0.05. Perceived overqualification significantly predicted meaningless work ($\beta = 0.45$, $p < 0.001$), and this perceived lack of meaning significantly influenced the intention to cyberloaf ($\beta = 0.30$, $p < 0.001$), lending support to H1 and H2. The effect of person–organization misfit on organizational disidentification was significant ($\beta = 0.31$, $p < 0.001$), which, in turn, significantly predicted the intention to cyberloaf ($\beta = 0.35$,

Table 6. Psychometric properties of measures ($N = 414$)

Variable	Item	Loading	Significance	AVE	CR	Cronbach's alpha	Skewness	Kurtosis
Job Embeddedness	JE1	0.733	(0.000) ^a	0.544	0.892	0.897	−0.563	0.078
	JE2	0.736	14.459				−0.469	0.426
	JE3	0.796	15.661				−0.518	0.039
	JE4	0.817	16.063				−0.515	−0.110
	JE5	0.641	12.376				−0.442	−0.200
	JE6	0.707	13.871				−0.332	−0.209
	JE7	0.723	14.188				−0.545	0.218
Perceived Overqualification	POQ1	0.782	(0.000) ^a	0.588	0.851	0.850	−0.868	0.850
	POQ2	0.736	14.828				−0.419	−0.347
	POQ3	0.795	16.059				−0.605	−0.061
	POQ4	0.755	15.253				−0.367	−0.170
Person–Organization Misfit	POM1	0.709	(0.000) ^a	0.601	0.818	0.815	−0.470	−0.043
	POM2	0.812	13.620				−0.437	−0.075
	POM3	0.801	13.572				−0.437	−0.211
Meaningless Work	MLW1	0.804	(0.000) ^a	0.614	0.864	0.863	0.093	−0.158
	MLW2	0.822	17.521				0.043	−0.575
	MLW3	0.771	16.329				−0.411	−0.450
	MLW4	0.736	15.477				−0.102	−0.139
Organizational Disidentification	ODI1	0.742	(0.000) ^a	0.570	0.799	0.796	−0.350	−0.519
	ODI2	0.767	13.374				−0.332	−0.206
	ODI3	0.756	13.269				−0.253	−0.022
Intention to Cyberloaf	ITC1	0.856	(0.000) ^a	0.699	0.874	0.874	−0.367	−0.535
	ITC2	0.816	18.873				−0.482	−0.314
	ITC3	0.836	19.372				−0.251	−0.563
Cyberloafing	CL1	0.717	(0.000) ^a	0.575	0.915	0.921	−0.591	0.239
	CL2	0.787	19.550				−0.676	0.642
	CL3	0.787	15.000				−0.353	0.063
	CL4	0.748	14.247				−0.396	0.157
	CL5	0.732	13.976				−0.394	−0.185
	CL6	0.774	14.788				−0.271	−0.082
	CL7	0.748	14.264				−0.525	0.502
	CL8	0.771	14.698				−0.217	−0.187
Moral Justification	MJ1	0.807	(0.000) ^a	0.690	0.898	0.897	−0.081	−0.948
	MJ2	0.863	19.917				−0.007	−0.666
	MJ3	0.879	20.336				0.095	−0.840
	MJ4	0.769	17.139				0.166	−0.647

Note(s) ^aRepresents a parameter fixed at 1.0; corresponding p -values are reported in parentheses

Source(s): Authors' own work

$p < 0.001$), confirming [H3](#) and [H4](#). The intention to cyberloaf significantly predicted actual cyberloafing behavior ($\beta = 0.34, p < 0.001$), supporting [H5](#).

The first indirect hypothesis posited that meaningless work and the intention to cyberloaf sequentially mediate the relationship between perceived overqualification and cyberloafing. The standardized indirect effect was $\beta = 0.045 (0.447 \times 0.295 \times 0.344)$. Bootstrapped confidence intervals (CI = 95%, 5,000 samples) ranged from 0.019 to 0.088, excluding zero. This confirmed the sequential mediation effect ($p < 0.001$), thereby supporting [H6](#). The second mediation hypothesis proposed that organizational disidentification and intention to cyberloaf jointly mediate the relationship between person–organization misfit and cyberloafing. The computed indirect effect was $\beta = 0.038 (0.313 \times 0.351 \times 0.344)$, with bootstrapped confidence intervals ranging from 0.015 to 0.078. As zero was not included in the interval, the sequential mediation effect was also supported ($p < 0.001$), confirming [H7](#).

3.3 Study 3

Study 3 employed a longitudinal design to examine the moderating role of moral justification in the relationship between the intention to cyberloaf and actual cyberloafing among knowledge workers. This time-lagged approach enhanced the causal interpretability of the findings and allowed for a more rigorous assessment of the moderation effect. Additionally, comparing the statistical significance of moderation strength across repeated estimations further improved the robustness of the results. As previously noted, 51 respondents dropped out before Time Point C, which was required for the implementation of Study 3. Accordingly, the analyses reported herein are based on the remaining 414 valid observations.

3.3.1 Measures and procedures. Moral justification was measured using the [Barsky \(2011\)](#) scale at Waves 2 and 3. The same instruments used to measure intention to cyberloaf and cyberloafing in Study 2 were retained here. Moral justification was assessed at Time B and again one month later at Time C. This one-month interval was selected to align with the temporal frame of the cyberloafing intention measure, which prompts respondents to reflect on behavioral intentions for the upcoming month. Two datasets were generated and analyzed using HMMR in SPSS. To evaluate the significance of the difference in the moderation effect between the early and late responses, a standardized mean difference was estimated using [Cohen's \(1988\)](#) d statistic, following the procedure recommended by [Lakens \(2013\)](#). The formula used for this calculation was as follows:

$$t = \frac{\text{Effect}_1 - \text{Effect}_2}{\sqrt{\frac{(m-1)^2}{m+n-2} \times SE_1^2 + \frac{(n-1)^2}{m+n-2} \times SE_2^2} \times \sqrt{\frac{1}{m} + \frac{1}{n}}}$$

Where n and m denote the sample sizes of the two waves (which were identical in this study), and SE refers to the standard error of the effect coefficient.

3.3.2 Results. As a prerequisite for moderation analysis, intention to cyberloaf and moral justification were mean-centered and standardized to create the interaction term ([Cohen et al., 2003](#)). Demographic variables, the predictor, the moderator, and the interaction term were entered sequentially into the hierarchical model in four steps. This procedure was replicated using the Wave 3 dataset to assess temporal consistency across waves.

As shown in [Table 7](#), the baseline model was not statistically significant ($F = 1.08, p = 0.35$), indicating that demographic controls (i.e. age, gender, and education) did not contribute to the variance in cyberloafing. However, in the subsequent steps, both intention to cyberloaf and moral justification emerged as significant predictors of cyberloafing. The interaction term was also statistically significant at both measurement waves ($\beta = 0.23, t = 4.59, p < 0.001$ at Wave 2; $\beta = 0.20, t = 4.03, p < 0.001$ at Wave 3), indicating that moral justification amplified the positive relationship between intention and actual behavior.

Table 7. Results of moderation effect testing

Variables	Model 1	Model 2	Model 3 Time B	Time C	Model 4 Time B	Time C
<i>Demographic variables</i>						
Age	0.059	0.051	0.048	0.046	0.025	0.031
Gender	−0.044	−0.045	−0.046	−0.034	−0.043	−0.044
Education	0.054	0.057	0.072	0.068	0.072	0.074
<i>Predictor variable</i>						
Intention to Cyberloaf		0.277***	0.203***	0.208***	0.327***	0.307***
<i>Moderator variable</i>						
Moral Justification			0.166**	0.190***	0.113*	0.132*
<i>Interactional variable</i>						
Intention to Cyberloaf × Moral Justification					0.238***	0.208***
<i>ANOVA</i>						
F	1.086	9.450***	9.714***	10.680***	12.004***	11.947***
<i>Model change</i>						
R ² change	0.008	0.077	0.022	0.031	0.044	0.034
F change	1.086	34.276***	9.947**	14.369***	21.066***	16.279***

Source(s): Authors' own work

The difference in moderation effects between the two waves was negligible ($\Delta\beta = 0.03$). A comparison of the unstandardized coefficients ($E_1 = 0.148$, $SE_1 = 0.032$; $E_2 = 0.128$, $SE_2 = 0.032$) yielded a t -statistic of 0.442, which fell below the critical value of 1.960. This result confirmed that the interaction effect remained stable over time.

Figure 2 depicts the simple slopes across both waves. The inclusion of the moderator increased the slope of the regression line, with minimal variance observed between the waves.

Table 8 provides a summary of all hypotheses and final model estimations, offering a consolidated overview of the empirical results.

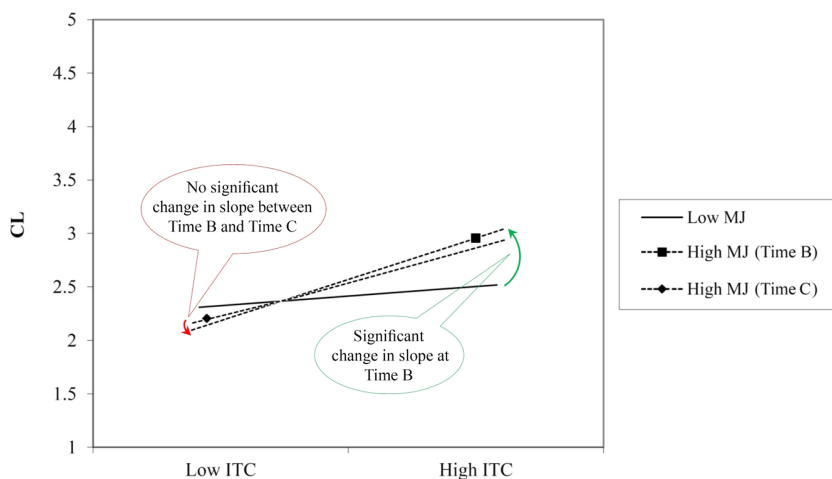


Figure 2. Temporal dynamics of main and moderated effects. Note. CL: Cyberloafing; ITC: intention to Cyberloaf; MJ: Moral Justification. Source. Authors' own creation

Table 8. Summary of hypotheses test results

H.	Path	Beta	t-value Critical threshold = 1.960	Support?
1	Perceived Overqualification → Meaningless Work	0.447	7.793	Yes
2	MeaninglessWork → Intention to Cyberloaf	0.295	5.311	Yes
3	Person–Organization Misfit → Organizational Disidentification	0.313	5.097	Yes
4	Organizational Disidentification → Intention to Cyberloaf	0.351	5.911	Yes
5	Intention to Cyberloaf → Cyberloafing	0.344	6.193	Yes
6	Perceived Overqualification → Meaningless Work → Intention to Cyberloaf → Cyberloafing	0.045	2.562	Yes
7	Person–Organization Misfit → Organizational Disidentification → Intention to Cyberloaf → Cyberloafing	0.038	2.467	Yes
8	Moral Justification → (Intention to Cyberloaf → Cyberloafing)	0.238, 0.208	4.590, 4.035	Yes

Source(s): Authors’ own work

4. Discussion

To the best of the authors’ knowledge, this research is the first to investigate the antecedents of cyberloafing among knowledge workers using TIB within the context of NKIOs. The investigation successfully achieved its primary aim by identifying constructs that explain cyberloafing as a multilevel behavioral sequence triggered by role misalignment. Sequential mediating effects provide empirical support for integrating the TIB with JET to account for the behavioral mechanisms that lead to cyberloafing among embedded knowledge workers.

Beyond these indirect pathways, the analysis also identified a significant moderating effect. Consistent with [Moody and Siponen’s \(2013\)](#) call, the findings offer both theoretical rationale and empirical evidence for the role of moral justification. Specifically, knowledge workers appear to morally justify cyberloafing as a rational response to incongruent work environments—ones they do not perceive as violating ethical norms. Minor differences in moderation effects across Time Points B and C may reflect a historical influence, as participants may have answered more cautiously in the latter wave, resulting in slight shifts in pre- and post-test conditions. Nevertheless, it was reasoned that the authenticity of the Time B data for moral justification was not significantly affected by the survey’s duration and that the respondents’ moral logic remained relatively stable over time, thereby supporting the reliability of the moderation effect.

Regarding the existing empirical evidence, several hypothesized pairwise associations align with prior research. These include links between perceived overqualification and meaningless work ([Allan et al., 2023](#); [Bochoridou and Gkorezis, 2024](#); [Sánchez-Cardona et al., 2020](#); [Zhang et al., 2022](#)), person–organization misfit and organizational disidentification ([Anaza, 2015](#); [Demir et al., 2015](#); [Ng and Feldman, 2014](#)), and intention to cyberloaf and actual cyberloafing ([Askew et al., 2014](#); [Bock et al., 2010](#); [Huma et al., 2017](#); [Khansa et al., 2017](#); [Sheikh et al., 2015](#)). However, fewer empirical studies have examined the role of meaningless work ([Tan et al., 2024a](#)) or disidentification ([Zhou et al., 2021](#)) in shaping cyberloafing intent.

Despite this, the findings reinforce two recurring effects in the literature. First, person–job misfit weakens opportunities for self-expression and meaningful work relationships ([Sánchez-Cardona et al., 2020](#)). Second, person–organization misfit undermines psychological belonging ([Ng and Feldman, 2014](#); [Westerman et al., 2022](#)). These adverse conditions foster disengagement, which may escalate when workers perceive their tasks as meaningless ([Usman et al., 2021](#)). Additionally, organizational disidentification diminishes psychological

attachment to organizational entities (Bolton *et al.*, 2012), thereby encouraging digital Personnel Review withdrawal.

The present investigation also confirms that behavioral intention among knowledge workers often leads to actual cyberloafing. This transition is facilitated by their ability to both engage in (Moody and Siponen, 2013) and conceal (Askew *et al.*, 2014) such behaviors. Notably, no prior empirical research has tested the specific moderation and sequential mediation effects examined in this investigation. This gap underscores the research's novelty and its contribution to the literature on counterproductive work behaviors among embedded knowledge workers.

The research offers several additional empirical contributions. First, it challenges the prevailing assumption that job embeddedness is uniformly beneficial (e.g. Avey *et al.*, 2015; Collins and Mossholder, 2017; Fakoor Saghih and Nosrati, 2021; Holtom *et al.*, 2012; Rahimnia *et al.*, 2019, 2022; Yusof *et al.*, 2019). The findings clarify that its outcomes depend on contextual fit. Second, it integrates constructs conceptually related to overqualification into a coherent framework. Third, it responds to calls for manager-based assessments of cyberloafing (Tandon *et al.*, 2022), thereby contributing to future research that extends beyond self-reported data.

The following sections outline the theoretical, practical, and policy implications of these findings.

4.1 Theoretical implications

This research presents a novel integration of TIB (Triandis, 1977) and JET (Mitchell *et al.*, 2001) to explain cyberloafing among knowledge workers embedded in NKIOs whose qualifications—either perceived or actual—exceed job requirements. TIB explains the psychological mechanisms underpinning cyberloafing, while JET provides a complementary structural lens, framing such behavior within adverse organizational contexts (Kiazad *et al.*, 2015). Moving beyond trait-based and decontextualized accounts, this investigation proposes a multilevel behavioral framework that identifies the antecedents and processes driving cyberloafing among embedded knowledge workers (Henle, 2024).

This framework yields four key theoretical contributions. First, it extends TIB by applying it to persistent structural misalignment—a context that has been underexplored in behavioral theory. While TIB typically emphasizes dispositional antecedents, the research demonstrates its relevance for understanding rationalized deviance in constrained environments. In doing so, it reframes cyberloafing as a context-sensitive behavior rather than a simple lapse in ethics, thereby expanding the interpretive flexibility of TIB.

Second, this research advances JET. Unlike TIB, which addresses internal motivations, JET introduces a structural perspective that is extended here by challenging its assumption that embeddedness is inherently beneficial. It demonstrates that under conditions of person–job and person–organization misfit, the “dark side” of embeddedness can entrench employees in misaligned roles; social and economic ties restrict mobility, leading to disengagement that manifests as cyberloafing. The theoretical propositions outlined also offer insights for interdisciplinary research in organizational psychology, labor economics, and business ethics, particularly regarding how employees rationalize deviance when various factors constrain their exit options.

Third, this research moves beyond static misfit models to investigate the dynamic processes linking misalignment and behavioral deviance. By identifying sequential mediating pathways, it offers a nuanced account of how contextual and psychological factors interact in complex, multi-layered forms of behavioral deviance, thereby enhancing explanatory granularity.

Fourth, these findings converge in an integrated framework that combines internal and external determinants of workplace deviance. This dual-theory approach offers a robust explanation for subtle disengagement behaviors, particularly among highly skilled professionals who occupy structurally incongruent roles.

In summary, this research challenges the dominant view of embeddedness as uniformly positive and reframes cyberloafing as a rational, context-dependent behavior. It opens new avenues for inquiry into workplace deviance in labor markets shaped by persistent structural mismatches.

4.2 Practical and policy implications

This research offers several practical and policy implications for managers and policymakers seeking to mitigate cyberloafing among knowledge workers embedded in NKIOs. Based on the integrated model and empirical results, these implications span recruitment, job design, workplace interventions, and policy reform.

Enhancing recruitment through fit-based selection. Cyberloafing often stems from misalignment at either the job level (person–job misfit; [Cheng et al., 2020](#); [Khan et al., 2022](#); [Zhang et al., 2019](#)) or organizational level (person–organization misfit; [Cheng et al., 2020](#); [Kluemper et al., 2016](#); [Rahman et al., 2022](#)). To reduce the risk of disengagement, NKIOs should incorporate fit assessments into their recruitment processes, enabling the identification of overqualified or value-incongruent candidates before they are hired.

Screening for moral disengagement through psychometric assessment. The findings highlight moral justification as a central cognitive mechanism that enables deviant workplace behavior. Moral reasoning tends to exhibit a trait-like stability across various contexts ([Barsky, 2011](#); [Clopton and Sorell, 1993](#)). Individuals prone to moral justification are more likely to relax ethical constraints ([Moody and Siponen, 2013](#)) and legitimize misconduct as a means of deflecting personal responsibility ([Boiral, 2016](#)). To preemptively identify such tendencies, managers are advised to incorporate validated psychometric tools—administered through both self- and peer-assessment formats—that measure ethical orientation and personal accountability. Instruments such as the Business-Related Ethicality Scale (BES; [Peterson et al., 2010](#)), the Moral Foundations Questionnaire (MFQ; [Graham et al., 2011](#)), the Contextual Self-Responsibility Questionnaire (CSRQ; [Watson et al., 2003](#)), and the Personal and Social Responsibility Questionnaire (PSRQ; [Li et al., 2008](#)) offer structured approaches for detecting moral disengagement and screening out candidates who are more inclined to justify counterproductive behavior.

Redesigning jobs to address underutilization. To counteract the effects of skill monotony among current employees, particularly knowledge workers constrained by repetitive roles, modular job designs are recommended. Managers should rotate assignments ([Correia de Sousa and Van Dierendonck, 2010](#)), establish cross-functional teams ([Maccoby, 1996](#); [Yang and Guy, 2011](#)), and assign project-based tasks ([Waters and Beruvides, 2012](#)). Creating internal consulting roles ([Donnelly, 2009](#)) can also unlock underutilized expertise and enhance engagement ([Waters and Beruvides, 2012](#)).

Fostering belonging and identity alignment. To address organizational disidentification, informal peer networks should be encouraged as alternative belonging mechanisms for knowledge workers to strengthen social bonds ([Fay and Kline, 2012](#)). Additionally, internal branding strategies should be employed to align organizational values with employees' professional identities. These efforts can improve cultural fit by promoting a stronger sense of unity and shared mission ([Bravo et al., 2021](#); [Mazumder et al., 2022](#)), thereby reducing the likelihood of withdrawal or compensatory digital engagement.

Developing behavioral monitoring systems for early detection and intervention. Given that knowledge workers are prone to engage in ([Aghaz and Sheikh, 2016](#)) and conceal cyberloafing ([Alvesson, 2004](#)), organizations should implement behavioral dashboards using validated tools to track predictors such as misfit and moral justification. These tools can serve as early warning systems for cognitive withdrawal, prompting timely interventions to address the issue.

Conducting cost analysis to justify intervention. NKIOs should incorporate cyberloafing cost analysis into performance metrics. Using the manager-reported cyberloafing scale

developed in this research, HR departments can quantify productivity losses and conduct cost-benefit analyses to inform their decisions. Framing interventions—such as job redesign, training, and task enrichment—as a return on investment provides a more compelling rationale for preventive action, thereby increasing executive support.

Using engagement surveys to reinforce coherence. Regular employee engagement and value-alignment surveys can monitor organizational coherence. Sharing feedback (i.e. evidence of progress) with knowledge workers who may be vulnerable to psychological disengagement strengthens inclusion and deters compensatory behaviors such as cyberloafing.

Addressing systemic misalignment through policy reform. The findings indicate a need for policy attention to address structural mismatches between the growing supply of highly educated professionals and the limited availability of well-designed roles in NKIOs, which diminishes graduate employability (Karimi Mazidi *et al.*, 2021). Governments and regulatory bodies should collaborate with universities and public employers to establish labor market observatories, monitor the underutilization of knowledge workers, and develop skill absorption frameworks tailored to non-knowledge-intensive industries. In public institutions, assigning technical or executive professionals (Drucker, 1994) to static, non-transformative roles may perpetuate a disengagement–deviance loop.

In summary, these recommendations provide actionable strategies to reduce cyberloafing by aligning employee capabilities more effectively with organizational context. Grounded in a robust empirical model, they support a shift from reactive discipline to proactive, evidence-based management, linking workplace behavior to structural and psychological fit. Practitioners are encouraged to implement these strategies with context-specific adaptations and ongoing refinement while giving due regard to the limitations of this research, as outlined in the following section.

4.3 Limitations and scope for future research

Despite offering a theory-driven, empirically substantiated model, the present research is not without limitations that warrant consideration in future investigations.

First, although a novel cyberloafing scale was developed from a managerial standpoint, its validation remains limited. Subsequent studies should rigorously assess its psychometric soundness and applicability in broader organizational contexts. Second, demographic variables—although statistically controlled in moderation analyses—were not incorporated into the structural equation model, potentially introducing omitted-variable bias. Experimental designs are recommended to mitigate this risk and strengthen causal inference.

Third, the research's exclusive focus on the public sector may restrict generalizability. Future research should extend the model to private-sector settings, particularly those with closed office environments, to test its contextual sensitivity and validity. This focus was deliberate, however, given the prevalence of non-knowledge-intensive roles in the public domain.

Beyond these specific limitations, the integrated framework lays the groundwork for two broader lines of inquiry: the examination of other passive deviant behaviors, such as knowledge hoarding, and comparative investigations into skill underutilization across knowledge-intensive and non-knowledge-intensive industries.

5. Conclusion

The integrated TIB–JET framework provides a conceptually grounded interpretation of the findings, encapsulated in the “loose hat” metaphor. This metaphor positions embedded knowledge workers—misaligned with their roles (TIB) and psychologically detached from their organizations (JET)—as being akin to a loose hat on the organization's head, symbolizing fragile organizational fit. Although these individuals are expected to engage extensively in cyberspace activities such as searching, networking, and knowledge sharing (Davenport, 2005),

NKIOs often restrict such autonomy. This dissonance fosters perceptions of overqualification and alienation, weakening both instrumental and affiliative ties and exacerbating workplace adversity. In adverse organizational environments, knowledge workers often disengage from aligning with the corporate brand and instead prioritize constructing a distinctly personal and professional brand (Aghaz and Sheikh, 2016; Bakker *et al.*, 2002; Suddaby *et al.*, 2007). When unable to exit misaligned roles to fulfill their commitment to self, many adopt cyberloafing as an accessible fallback strategy for self-expression and psychological recovery.

These insights are grounded in a rigorous conceptual and methodological foundation, distinguished by four core strengths: (1) the use of multi-source data capturing cyberloafing from managers' perspectives, (2) a longitudinal multi-wave design that enhances causal inference, (3) the application of TIB as the primary explanatory framework, and (4) the complementary integration of JET.

About the authors

Ahmadreza Karimi Mazidi is a postdoctoral researcher at Ferdowsi University of Mashhad. His research interests focus on organizational behavior, organizational psychology, human resource management, and marketing management. He has published work in journals such as *Computers in Human Behavior* and *Personnel Review*.

Fariborz Rahimnia serves as a professor of management at Ferdowsi University of Mashhad. His scholarly work centers on organizational behavior and strategic management. His research has appeared in leading academic journals, including *Computers in Human Behavior*, *Information and Management*, and *Personnel Review*.

Appendix

Measurement scales and items

Job embeddedness (Abridged scale; 7 items)

Source: Crossley *et al.* (2007)

- (1) I feel attached to this organization.
- (2) It would be difficult for me to leave this organization.
- (3) I'm too caught up in this organization to leave.
- (4) I feel tied to this organization.
- (5) I simply could not leave the organization that I work for.
- (6) It would be easy for me to leave this organization. (*Reverse-scored*)
- (7) I am tightly connected to this organization.

Perceived overqualification (4 items)

Source: Johnson and Johnson (1996)

- (1) My formal education overqualifies me for my present job.
- (2) My talents are not fully utilized in my job.
- (3) My work experience is more than necessary to do my present job.
- (4) Based on my skills, I am overqualified for the job I hold.

Person–organization misfit (3 items; reverse-scored)

Source: Cable and Judge (1996)

- (1) I feel my values match this organization.
- (2) I think the personality of this organization reflects my own personality.
- (3) My values match those of current employees in this organization.

Meaningless work (4 items; reverse-scored)

Source: *Positive meaning subscale of WAMI*; [Steger et al. \(2012\)](#)

- (1) I have found a meaningful career.
- (2) I understand how my work contributes to my life's meaning.
- (3) I have a good sense of what makes my job meaningful.
- (4) I have discovered work that has a satisfying purpose.

Organizational disidentification (Abridged scale; 3 items)

Source: [Kreiner and Ashforth \(2004\)](#)

- (1) I am embarrassed to be part of this organization.
- (2) I want people to know that I disagree with how this organization behaves.
- (3) I have been ashamed of what goes on in this organization.

Intention to cyberloaf (3 items)

Source: [Khansa et al. \(2017\)](#)

- (1) I predict that I will use the internet at work for non-work-related purposes in the next month.
- (2) I intend to use the internet at work for non-work-related purposes in the next month.
- (3) I plan to use the internet at work for non-work-related purposes in the next month.

Cyberloafing (8 items, 4-dimensional; newly developed scale)*Tracking*

- (1) Monitoring systems track this employee in irrelevant online locations (internet portals for gaming, networking, video sharing, discussion forums, news, pornography, and so forth)
- (2) Surveillance reports indicate that this employee downloads an abundance of information unrelated to work.

Observing

- (1) I have witnessed this employee staying alert for instant messaging in online chats during work.
- (2) I personally observed that this employee often hangs around sending and receiving non-work-related emails.

Feeling

- (1) From informal conversations at work, I get the feeling that this employee roams non-work-related websites.
- (2) Based on how this employee behaves, I feel they shrug off work by scrolling through random stuff online.

Hearing

- (1) I hear from this employee's colleagues that they look for other jobs while getting distracted in cyberspace.
- (2) The clients complain that this employee is often occupied online with personal business (such as shopping, banking, and so forth).

Moral justification (4 items)

Source: [Barsky \(2011\)](#).

- (1) It is alright to exaggerate the truth to keep me out of trouble.
- (2) If it helps me do my job, it is alright to deceive clients or customers.
- (3) It is alright to stretch the truth to protect myself.
- (4) If I need to stretch the truth to do my job, I cannot be blamed for lying.

References

- Aghaz, A. and Sheikh, A. (2016), "Cyberloafing and job burnout: an investigation in the knowledge-intensive sector", *Computers in Human Behavior*, Vol. 62, pp. 51-60, doi: [10.1016/j.chb.2016.03.069](https://doi.org/10.1016/j.chb.2016.03.069).
- Ajzen, I. (1991), "The theory of planned behavior", *Organizational Behavior and Human Decision Processes*, Vol. 50 No. 2, pp. 179-211, doi: [10.1016/0749-5978\(91\)90020-t](https://doi.org/10.1016/0749-5978(91)90020-t).
- Allan, B.A., Sterling, H.M., Kim, T., Joy, E.E. and Kahng, D.S. (2023), "Perceived overqualification among therapists: an experimental study", *Journal of Career Assessment*, Vol. 32 No. 1, pp. 142-153, doi: [10.1177/10690727231185173](https://doi.org/10.1177/10690727231185173).
- Alvesson, M. (2001), "Knowledge work: ambiguity, image and identity", *Human Relations*, Vol. 54 No. 7, pp. 863-886, doi: [10.1177/0018726701547004](https://doi.org/10.1177/0018726701547004).
- Alvesson, M. (2004), *Knowledge Work and knowledge-intensive Firms*, Oxford University Press, Oxford.
- Amponsah-Tawiah, K., Mensah, J. and Baafi, N.K.A. (2023), "Telecommuting and cyberloafing in the Ghanaian context. The role of employees emotional exhaustion", *Organization Management Journal*, Vol. 20 No. 4, pp. 143-155, doi: [10.1108/omj-11-2021-1403](https://doi.org/10.1108/omj-11-2021-1403).
- Anaza, N.A. (2015), "Relations of fit and organizational identification to employee-customer identification", *Journal of Managerial Psychology*, Vol. 30 No. 8, pp. 925-939, doi: [10.1108/jmp-12-2012-0389](https://doi.org/10.1108/jmp-12-2012-0389).
- Andel, S.A., Kessler, S.R., Pindek, S., Kleinman, G. and Spector, P.E. (2019), "Is cyberloafing more complex than we originally thought? Cyberloafing as a coping response to workplace aggression exposure", *Computers in Human Behavior*, Vol. 101, pp. 124-130, doi: [10.1016/j.chb.2019.07.013](https://doi.org/10.1016/j.chb.2019.07.013).
- Andel, S., Pindek, S. and Arvan, M.L. (2022), "Bored, angry, and overqualified? The high-and low-intensity pathways linking perceived overqualification to behavioural outcomes", *European Journal of Work and Organizational Psychology*, Vol. 31 No. 1, pp. 47-60, doi: [10.1080/1359432x.2021.1919624](https://doi.org/10.1080/1359432x.2021.1919624).
- Appel-Meulenbroek, R., Le Blanc, P. and De Kort, Y.A.W. (2020), "Person-environment fit: optimizing the physical work environment", in Ayoko, O.B. and Ashkanasy, N.M. (Eds), *Organizational Behavior and the Physical Environment*, Routledge, New York, NY, pp. 251-267.
- Ashforth, B.E. and Mael, F. (1989), "Social identity theory and the organization", *Academy of Management Review*, Vol. 14 No. 1, pp. 20-39, doi: [10.2307/258189](https://doi.org/10.2307/258189).
- Askew, K., Buckner, J.E., Taing, M.U., Ilie, A., Bauer, J.A. and Coovert, M.D. (2014), "Explaining cyberloafing: the role of the theory of planned behavior", *Computers in Human Behavior*, Vol. 36, pp. 510-519, doi: [10.1016/j.chb.2014.04.006](https://doi.org/10.1016/j.chb.2014.04.006).
- Avey, J.B., Wu, K. and Holley, E. (2015), "The influence of abusive supervision and job embeddedness on citizenship and deviance", *Journal of Business Ethics*, Vol. 129 No. 3, pp. 721-731, doi: [10.1007/s10551-014-2192-x](https://doi.org/10.1007/s10551-014-2192-x).
- Bakker, A.B., Demerouti, E. and Schaufeli, W.B. (2002), "Validation of the Maslach burnout inventory-general survey: an internet study", *Anxiety, Stress and Coping*, Vol. 15 No. 3, pp. 245-260, doi: [10.1080/1061580021000020716](https://doi.org/10.1080/1061580021000020716).
- Bamberg, S. and Schmidt, P. (2003), "Incentives, morality, or habit? Predicting students' car use for university routes with the models of Ajzen, Schwartz, and triandis", *Environment and Behavior*, Vol. 35 No. 2, pp. 264-285, doi: [10.1177/0013916502250134](https://doi.org/10.1177/0013916502250134).
- Barsky, A. (2011), "Investigating the effects of moral disengagement and participation on unethical work behavior", *Journal of Business Ethics*, Vol. 104 No. 1, pp. 59-75, doi: [10.1007/s10551-011-0889-7](https://doi.org/10.1007/s10551-011-0889-7).
- Batabyal, S.K. and Bhal, K.T. (2020), "Traditional cyberloafing, mobile cyberloafing and personal mobile-internet loafing in business organizations: exploring cognitive ethical logics", *Journal of Information, Communication and Ethics in Society*, Vol. 18 No. 4, pp. 631-647, doi: [10.1108/jices-07-2019-0081](https://doi.org/10.1108/jices-07-2019-0081).

- Berg, J.M., Dutton, J.E. and Wrzesniewski, A. (2013), "Job crafting and meaningful work", in Dik, B.J., Byrne, Z.S. and Steger, M.F. (Eds), *Purpose and Meaning in the Workplace*, American Psychological Association, Washington DC, pp. 81-104.
- Blanchard, A.L. and Henle, C.A. (2008), "Correlates of different forms of cyberloafing: the role of norms and external locus of control", *Computers in Human Behavior*, Vol. 24 No. 3, pp. 1067-1084, doi: [10.1016/j.chb.2007.03.008](https://doi.org/10.1016/j.chb.2007.03.008).
- Bochoridou, A. and Gkorezis, P. (2024), "Perceived overqualification, work-related boredom, and intention to leave: examining the moderating role of high-performance work systems", *Personnel Review*, Vol. 53 No. 5, pp. 1311-1330, doi: [10.1108/pr-07-2022-0474](https://doi.org/10.1108/pr-07-2022-0474).
- Bock, G.W., Park, S.C. and Zhang, Y. (2010), "Why employees do non-work-related computing in the workplace", *Journal of Computer Information Systems*, Vol. 50 No. 3, pp. 150-163.
- Boiral, O. (2016), "Accounting for the unaccountable: biodiversity reporting and impression management", *Journal of Business Ethics*, Vol. 135 No. 4, pp. 751-768, doi: [10.1007/s10551-014-2497-9](https://doi.org/10.1007/s10551-014-2497-9).
- Bolton, L.R., Harvey, R.D., Grawitch, M.J. and Barber, L.K. (2012), "Counterproductive work behaviours in response to emotional exhaustion: a moderated mediational approach", *Stress and Health*, Vol. 28 No. 3, pp. 222-233, doi: [10.1002/smi.1425](https://doi.org/10.1002/smi.1425).
- Bravo, R., Pina, J.M. and Tirado, B. (2021), "Effects of internal brand knowledge dissemination on the employee", *International Journal of Bank Marketing*, Vol. 39 No. 7, pp. 1273-1291, doi: [10.1108/ijbm-12-2020-0608](https://doi.org/10.1108/ijbm-12-2020-0608).
- Brown, L.W., Manegold, J.G. and Marquardt, D.J. (2020), "The effects of CEO activism on employees person-organization ideological misfit: a conceptual model and research agenda", *Business and Society Review*, Vol. 125 No. 1, pp. 119-141, doi: [10.1111/basr.12196](https://doi.org/10.1111/basr.12196).
- Cable, D.M. and Judge, T.A. (1996), "Person-organization fit, job choice decisions, and organizational entry", *Organizational Behavior and Human Decision Processes*, Vol. 67 No. 3, pp. 294-311, doi: [10.1006/obhd.1996.0081](https://doi.org/10.1006/obhd.1996.0081).
- Chen, C., Yu, C. and Zhang, Y. (2020), "The transformational leadership of water-intensive enterprises to social loafing: the mediating role of person-organization fit", *Journal of Coastal Research*, Vol. 104 SI, pp. 940-944, doi: [10.2112/jcr-si104-163.1](https://doi.org/10.2112/jcr-si104-163.1).
- Cheng, B., Zhou, X., Guo, G. and Yang, K. (2020), "Perceived overqualification and cyberloafing: a moderated-mediation model based on equity theory", *Journal of Business Ethics*, Vol. 164 No. 3, pp. 565-577, doi: [10.1007/s10551-018-4026-8](https://doi.org/10.1007/s10551-018-4026-8).
- Churchill, G.A. Jr (1979), "A paradigm for developing better measures of marketing constructs", *Journal of Marketing Research*, Vol. 16 No. 1, pp. 64-73, doi: [10.2307/3150876](https://doi.org/10.2307/3150876).
- Clopton, N.A. and Sorell, G.T. (1993), "Gender differences in moral reasoning: stable or situational?", *Psychology of Women Quarterly*, Vol. 17 No. 1, pp. 85-101, doi: [10.1111/j.1471-6402.1993.tb00678.x](https://doi.org/10.1111/j.1471-6402.1993.tb00678.x).
- Cohen, J. (1988), *Statistical Power Analysis for the Behavioral Sciences*, Routledge Academic, New York, NY.
- Cohen, J., Cohen, P., West, S.G. and Aiken, L.S. (2003), *Applied Multiple correlation/regression Analysis for the Social Sciences*, Erlbaum, Hillsdale, NJ.
- Collins, B.J. and Mossholder, K.W. (2017), "Fairness means more to some than others: interactional fairness, job embeddedness, and discretionary work behaviors", *Journal of Management*, Vol. 43 No. 2, pp. 293-318, doi: [10.1177/0149206314527132](https://doi.org/10.1177/0149206314527132).
- Correia de Sousa, M. and Van Dierendonck, D. (2010), "Knowledge workers, servant leadership and the search for meaning in knowledge-driven organizations", *On the Horizon*, Vol. 18 No. 3, pp. 230-239, doi: [10.1108/10748121011072681](https://doi.org/10.1108/10748121011072681).
- Crossley, C.D., Bennett, R.J., Jex, S.M. and Burnfield, J.L. (2007), "Development of a global measure of job embeddedness and integration into a traditional model of voluntary turnover", *Journal of Applied Psychology*, Vol. 92 No. 4, pp. 1031-1042, doi: [10.1037/0021-9010.92.4.1031](https://doi.org/10.1037/0021-9010.92.4.1031).

- Darrat, M.A., Amyx, D.A. and Bennett, R.J. (2017), "Examining the impact of job embeddedness on salesperson deviance: the moderating role of job satisfaction", *Industrial Marketing Management*, Vol. 63, pp. 158-166, doi: [10.1016/j.indmarman.2016.10.012](https://doi.org/10.1016/j.indmarman.2016.10.012).
- Davenport, T.H. (2005), *Thinking for a Living: How to Get Better Performance and Results from Knowledge Workers*, Harvard Business School Press, Boston, MA.
- Demir, M., Demir, S.S. and Nield, K. (2015), "The relationship between person-organization fit, organizational identification and work outcomes", *Journal of Business Economics and Management*, Vol. 16 No. 2, pp. 369-386, doi: [10.3846/16111699.2013.785975](https://doi.org/10.3846/16111699.2013.785975).
- Dewe, P. (2022), "Coping in the new world: the challenges of the 'new normal' of work and life", in Kinder, A., Hughes, R. and Cooper, C.L. (Eds), *Occupational Health and Wellbeing*, Routledge, London, pp. 166-180.
- Donnelly, R. (2009), "The knowledge economy and the restructuring of employment: the case of consultants", *Work, Employment and Society*, Vol. 23 No. 2, pp. 323-341, doi: [10.1177/0950017009102861](https://doi.org/10.1177/0950017009102861).
- Drucker, P. (1994), *The Post-capitalist Society*, Harper-Collins, New York.
- Edwards, J.R. (2008), "Person-environment fit in organizations: an assessment of theoretical progress", *The Academy of Management Annals*, Vol. 2 No. 1, pp. 167-230, doi: [10.5465/19416520802211503](https://doi.org/10.5465/19416520802211503).
- Elsbach, K.D. and Bhattacharya, C.B. (2001), "Defining who you are by what you're not: organizational disidentification and the national rifle association", *Organization Science*, Vol. 12 No. 4, pp. 393-413, doi: [10.1287/orsc.12.4.393.10638](https://doi.org/10.1287/orsc.12.4.393.10638).
- Fakoor Saghih, A.M. and Nosrati, S. (2021), "The antecedents of job embeddedness and their effects on cyberloafing among employees of public universities in eastern Iran", *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 14 No. 1, pp. 77-93, doi: [10.1108/imefm-11-2019-0489](https://doi.org/10.1108/imefm-11-2019-0489).
- Farasat, M. and Azam, A. (2022), "Supervisor bottom-line mentality and subordinates' unethical pro-organizational behavior", *Personnel Review*, Vol. 51 No. 1, pp. 353-376, doi: [10.1108/pr-03-2020-0129](https://doi.org/10.1108/pr-03-2020-0129).
- Fay, M.J. and Kline, S.L. (2012), "The influence of informal communication on organizational identification and commitment in the context of high-intensity telecommuting", *Southern Communication Journal*, Vol. 77 No. 1, pp. 61-76, doi: [10.1080/1041794x.2011.582921](https://doi.org/10.1080/1041794x.2011.582921).
- Ferris, D.L., Brown, D.J., Berry, J.W. and Lian, H. (2008), "The development and validation of the workplace ostracism scale", *Journal of Applied Psychology*, Vol. 93 No. 6, pp. 1348-1366, doi: [10.1037/a0012743](https://doi.org/10.1037/a0012743).
- Fishbein, M. and Ajzen, I. (1975), *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*, Addison-Wesley, Reading, MA.
- Fornell, C. and Larcker, D. (1981), "Structural equation modeling and regression: guidelines for research practice", *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39-50.
- Gibney, R.A.Y., Zagenczyk, T.J., Fuller, J.B., Hester, K.I.M. and Caner, T. (2011), "Exploring organizational obstruction and the expanded model of organizational identification", *Journal of Applied Social Psychology*, Vol. 41 No. 5, pp. 1083-1109, doi: [10.1111/j.1559-1816.2011.00748.x](https://doi.org/10.1111/j.1559-1816.2011.00748.x).
- Glassman, J., Prosch, M. and Shao, B.B. (2015), "To monitor or not to monitor: effectiveness of a cyberloafing countermeasure", *Information and Management*, Vol. 52 No. 2, pp. 170-182, doi: [10.1016/j.im.2014.08.001](https://doi.org/10.1016/j.im.2014.08.001).
- Graham, J., Nosek, B.A., Haidt, J., Iyer, R., Koleva, S. and Ditto, P.H. (2011), "Mapping the moral domain", *Journal of Personality and Social Psychology*, Vol. 101 No. 2, pp. 366-385, doi: [10.1037/a0021847](https://doi.org/10.1037/a0021847).
- Hadlington, L., Binder, J. and Stanulewicz, N. (2021), "Exploring role of moral disengagement and counterproductive work behaviours in information security awareness", *Computers in Human Behavior*, Vol. 114, 106557, doi: [10.1016/j.chb.2020.106557](https://doi.org/10.1016/j.chb.2020.106557).

- Hair, J.E., Anderson, R.E., Tatham, R.L. and Black, W.C. (1998), *Multivariate Data Analysis*, 5th ed., Personnel Review Prentice-Hall, Upper Saddle River, NJ.
- Harman, H.H. (1976), *Modern Factor Analysis*, 3rd ed., The University of Chicago Press, Chicago, IL.
- Henle, C.A. (2024), "Shifting the literature from who and when to why: identifying cyberloafing motives", *Applied Psychology*, Vol. 73 No. 1, pp. 495-501, doi: [10.1111/apps.12470](https://doi.org/10.1111/apps.12470).
- Henle, C.A. and Blanchard, A.L. (2008), "The interaction of work stressors and organizational sanctions on cyberloafing", *Journal of Managerial Issues*, Vol. 20 No. 3, pp. 383-400.
- Henseler, J., Ringle, C.M. and Sarstedt, M. (2015), "A new criterion for assessing discriminant validity in variance-based structural equation modeling", *Journal of the Academy of Marketing Science*, Vol. 43 No. 1, pp. 115-135, doi: [10.1007/s11747-014-0403-8](https://doi.org/10.1007/s11747-014-0403-8).
- Hinkin, T.R. (1995), "A review of scale development in the study of behavior in organizations", *Journal of Management*, Vol. 21 No. 5, pp. 967-988, doi: [10.1016/0149-2063\(95\)90050-0](https://doi.org/10.1016/0149-2063(95)90050-0).
- Holtom, B.C., Burton, J.P. and Crossley, C.D. (2012), "How negative affectivity moderates the relationship between shocks, embeddedness and worker behaviors", *Journal of Vocational Behavior*, Vol. 80 No. 2, pp. 434-443, doi: [10.1016/j.jvb.2011.12.006](https://doi.org/10.1016/j.jvb.2011.12.006).
- Huma, Z.E., Hussain, S., Thurasamy, R. and Malik, M.I. (2017), "Determinants of cyberloafing: a comparative study of a public and private sector organization", *Internet Research*, Vol. 27 No. 1, pp. 97-117, doi: [10.1108/intre-12-2014-0317](https://doi.org/10.1108/intre-12-2014-0317).
- Jia, H., Jia, R. and Karau, S. (2013), "Cyberloafing and personality: the impact of the big five traits and workplace situational factors", *Journal of Leadership and Organizational Studies*, Vol. 20 No. 3, pp. 358-365.
- Jian, G. (2013), "Understanding the wired workplace: the effects of job characteristics on employees' personal online communication at work", *Communication Research Reports*, Vol. 30 No. 1, pp. 22-33, doi: [10.1080/08824096.2012.746221](https://doi.org/10.1080/08824096.2012.746221).
- Johnson, G.J. and Johnson, W.R. (1996), "Perceived overqualification and psychological well-being", *The Journal of Social Psychology*, Vol. 136 No. 4, pp. 435-445, doi: [10.1080/00224545.1996.9714025](https://doi.org/10.1080/00224545.1996.9714025).
- Johnson, G.J. and Johnson, W.R. (2000), "Perceived overqualification, positive and negative affectivity, and satisfaction with work", *Journal of Social Behavior and Personality*, Vol. 15 No. 2, pp. 167-184.
- Karimi Mazidi, A., Rahimnia, F., Mortazavi, S. and Lagzian, M. (2021), "Cyberloafing in public sector of developing countries: job embeddedness as a context", *Personnel Review*, Vol. 50 Nos 7/8, pp. 1705-1738, doi: [10.1108/pr-01-2020-0026](https://doi.org/10.1108/pr-01-2020-0026).
- Khan, J., Saeed, I., Fayaz, M., Zada, M. and Jan, D. (2022), "Perceived overqualification? Examining its nexus with cyberloafing and knowledge hiding behaviour: harmonious passion as a moderator", *Journal of Knowledge Management*, Vol. 27 No. 2, pp. 460-484, doi: [10.1108/jkm-09-2021-0700](https://doi.org/10.1108/jkm-09-2021-0700).
- Khansa, L., Kuem, J., Siponen, M. and Kim, S.S. (2017), "To cyberloaf or not to cyberloaf: the impact of the announcement of formal organizational controls", *Journal of Management Information Systems*, Vol. 34 No. 1, pp. 141-176, doi: [10.1080/07421222.2017.1297173](https://doi.org/10.1080/07421222.2017.1297173).
- Khorakian, A., Jahangir, M., Rahi, S., Eslami, G. and Muterera, J. (2024), "Remote working and work performance during the COVID-19 pandemic: the role of remote work satisfaction, digital literacy, and cyberslacking", *Behaviour and Information Technology*, Vol. 43 No. 10, pp. 1938-1956, doi: [10.1080/0144929x.2023.2235026](https://doi.org/10.1080/0144929x.2023.2235026).
- Kiazad, K., Holtom, B.C., Hom, P.W. and Newman, A. (2015), "Job embeddedness: a multifoci theoretical extension", *Journal of Applied Psychology*, Vol. 100 No. 3, pp. 641-659, doi: [10.1037/a0038919](https://doi.org/10.1037/a0038919).
- Kim, H.Y. (2013), "Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis", *Restorative Dentistry and Endodontics*, Vol. 38 No. 1, pp. 52-54.

- Kluemper, D.H., Mitra, A. and Wang, S. (2016), "Social media use in HRM", *Research in Personnel and Human Resources Management*, Vol. 34, pp. 153-207, doi: [10.1108/s0742-730120160000034011](https://doi.org/10.1108/s0742-730120160000034011).
- Koay, K.Y. (2018), "Workplace ostracism and cyberloafing: a moderated-mediation model", *Internet Research*, Vol. 28 No. 4, pp. 1122-1141, doi: [10.1108/intr-07-2017-0268](https://doi.org/10.1108/intr-07-2017-0268).
- Koay, K.Y., Lim, V.K., Soh, P.C.H., Ong, D.L.T., Ho, J.S.Y. and Lim, P.K. (2022), "Abusive supervision and cyberloafing: a moderated moderation model of moral disengagement and negative reciprocity beliefs", *Information and Management*, Vol. 59 No. 2, 103600, doi: [10.1016/j.im.2022.103600](https://doi.org/10.1016/j.im.2022.103600).
- König, C.J. and de la Guardia, M.E.C. (2014), "Exploring the positive side of personal internet use at work: does it help in managing the border between work and nonwork?", *Computers in Human Behavior*, Vol. 30, pp. 355-360, doi: [10.1016/j.chb.2013.09.021](https://doi.org/10.1016/j.chb.2013.09.021).
- Kreiner, G.E. and Ashforth, B.E. (2004), "Evidence toward an expanded model of organizational identification", *Journal of Organizational Behavior*, Vol. 25 No. 1, pp. 1-27, doi: [10.1002/job.234](https://doi.org/10.1002/job.234).
- Lakens, D. (2013), "Calculating and reporting effect sizes to facilitate cumulative science: a practical primer for *t*-tests and ANOVAs", *Frontiers in Psychology*, Vol. 4, p. 863, doi: [10.3389/fpsyg.2013.00863](https://doi.org/10.3389/fpsyg.2013.00863).
- Li, W., Wright, P.M., Rukavina, P.B. and Pickering, M. (2008), "Measuring students' perceptions of personal and social responsibility and the relationship to intrinsic motivation in urban physical education", *Journal of Teaching in Physical Education*, Vol. 27 No. 2, pp. 167-178, doi: [10.1123/jtpe.27.2.167](https://doi.org/10.1123/jtpe.27.2.167).
- Li, H., Zhang, J. and Sarathy, R. (2010), "Understanding compliance with internet use policy from the perspective of rational choice theory", *Decision Support Systems*, Vol. 48 No. 4, pp. 635-645, doi: [10.1016/j.dss.2009.12.005](https://doi.org/10.1016/j.dss.2009.12.005).
- Lieberman, B., Seidman, G., McKenna, K.Y. and Buffardi, L.E. (2011), "Employee job attitudes and organizational characteristics as predictors of cyberloafing", *Computers in Human Behavior*, Vol. 27 No. 6, pp. 2192-2199, doi: [10.1016/j.chb.2011.06.015](https://doi.org/10.1016/j.chb.2011.06.015).
- Lim, V.K. (2002), "The IT way of loafing on the job: cyberloafing, neutralizing and organizational justice", *Journal of Organizational Behavior*, Vol. 23 No. 5, pp. 675-694, doi: [10.1002/job.161](https://doi.org/10.1002/job.161).
- Lim, V.K. and Chen, D.J. (2012), "Cyberloafing at the workplace: gain or drain on work?", *Behaviour and Information Technology*, Vol. 31 No. 4, pp. 343-353, doi: [10.1080/01449290903353054](https://doi.org/10.1080/01449290903353054).
- Lim, V.K.G. and Teo, T.S.H. (2005), "Prevalence, perceived seriousness, justification and regulation of cyberloafing in Singapore: an exploratory study", *Information and Management*, Vol. 42 No. 8, pp. 1081-1093, doi: [10.1016/j.im.2004.12.002](https://doi.org/10.1016/j.im.2004.12.002).
- Lim, V.K.G. and Teo, T.S.H. (2024), "Cyberloafing: a review and research agenda", *Applied Psychology*, Vol. 73 No. 1, pp. 441-484, doi: [10.1111/apps.12452](https://doi.org/10.1111/apps.12452).
- Liu, C., Yang, J., Liu, J. and Zhu, L. (2021), "The effect of abusive supervision on employee deviant behaviors: an identity-based perspective", *International Journal of Human Resource Management*, Vol. 32 No. 4, pp. 948-978, doi: [10.1080/09585192.2018.1511613](https://doi.org/10.1080/09585192.2018.1511613).
- Lo Presti, A., De Rosa, A., Kundi, Y.M., Mamcarz, P. and Wołóńciej, M. (2024), "Be a boundaryless good guy! how job embeddedness mediates and organizational identification moderates the associations of boundaryless career attitude with extra-role behaviours", *Career Development International*, Vol. 29 No. 4, pp. 466-480, doi: [10.1108/cdi-08-2023-0262](https://doi.org/10.1108/cdi-08-2023-0262).
- Maccoby, M. (1996), "The human side: knowledge workers need new structures", *Research-Technology Management*, Vol. 39 No. 1, pp. 56-58, doi: [10.1080/08956308.1996.11671038](https://doi.org/10.1080/08956308.1996.11671038).
- Marsh, H.W. and Hocevar, D. (1985), "Application of confirmatory factor analysis to the study of self-concept: first-and higher order factor models and their invariance across groups", *Psychological Bulletin*, Vol. 97 No. 3, pp. 562-582, doi: [10.1037//0033-2909.97.3.562](https://doi.org/10.1037//0033-2909.97.3.562).
- Maynard, D.C., Joseph, T.A. and Maynard, A.M. (2006), "Underemployment, job attitudes, and turnover intentions", *Journal of Organizational Behavior*, Vol. 27 No. 4, pp. 509-536, doi: [10.1002/job.389](https://doi.org/10.1002/job.389).

- Mazumder, T., Nanda Agarwal, M. and Sharma, T. (2022), "Organizational identification of knowledge workers in India: causes, consequences and the relevance of context", *Personnel Review*, Vol. 51 No. 3, pp. 1020-1040, doi: [10.1108/pr-04-2020-0255](https://doi.org/10.1108/pr-04-2020-0255).
- Mitchell, T.R., Holtom, B.C., Lee, T.W., Sablinski, C.J. and Erez, M. (2001), "Why people stay: using job embeddedness to predict voluntary turnover", *Academy of Management Journal*, Vol. 44 No. 6, pp. 1102-1121, doi: [10.2307/3069391](https://doi.org/10.2307/3069391).
- Moody, G.D. and Siponen, M. (2013), "Using the theory of interpersonal behavior to explain non-work-related personal use of the internet at work", *Information and Management*, Vol. 50 No. 6, pp. 322-335, doi: [10.1016/j.im.2013.04.005](https://doi.org/10.1016/j.im.2013.04.005).
- Nair, N. and Vohra, N. (2010), "An exploration of factors predicting work alienation of knowledge workers", *Management Decision*, Vol. 48 No. 4, pp. 600-615, doi: [10.1108/00251741011041373](https://doi.org/10.1108/00251741011041373).
- Ng, T.W. and Feldman, D.C. (2014), "Community embeddedness and work outcomes: the mediating role of organizational embeddedness", *Human Relations*, Vol. 67 No. 1, pp. 71-103, doi: [10.1177/0018726713486946](https://doi.org/10.1177/0018726713486946).
- Oliveira, E. and Cabral Cardoso, C. (2018), "Stereotype threat and older worker's attitudes: a mediation model", *Personnel Review*, Vol. 47 No. 1, pp. 187-205, doi: [10.1108/pr-11-2016-0306](https://doi.org/10.1108/pr-11-2016-0306).
- Page, D. (2015), "Teachers' personal web use at work", *Behaviour and Information Technology*, Vol. 34 No. 5, pp. 443-453, doi: [10.1080/0144929x.2014.928744](https://doi.org/10.1080/0144929x.2014.928744).
- Pan, R. and Hou, Z. (2024), "The relationship between objective overqualification, perceived overqualification and job satisfaction: employment opportunity matters", *Personnel Review*, Vol. 53 No. 8, pp. 1925-1949, doi: [10.1108/pr-02-2023-0080](https://doi.org/10.1108/pr-02-2023-0080).
- Paulsen, R. (2015), "Non-work at work: resistance or what?", *Organization*, Vol. 22 No. 3, pp. 351-367, doi: [10.1177/1350508413515541](https://doi.org/10.1177/1350508413515541).
- Pee, L.G., Woon, I.M. and Kankanhalli, A. (2008), "Explaining non-work-related computing in the workplace: a comparison of alternative models", *Information and Management*, Vol. 45 No. 2, pp. 120-130, doi: [10.1016/j.im.2008.01.004](https://doi.org/10.1016/j.im.2008.01.004).
- Peterson, R.A., Albaum, G., Merunka, D., Munuera, J.L. and Smith, S.M. (2010), "Effects of nationality, gender, and religiosity on business-related ethicality", *Journal of Business Ethics*, Vol. 96 No. 4, pp. 573-587, doi: [10.1007/s10551-010-0485-2](https://doi.org/10.1007/s10551-010-0485-2).
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. and Podsakoff, N.P. (2003), "Common method biases in behavioral research: a critical review of the literature and recommended remedies", *Journal of Applied Psychology*, Vol. 88 No. 5, pp. 879-903, doi: [10.1037/0021-9010.88.5.879](https://doi.org/10.1037/0021-9010.88.5.879).
- Podsakoff, P.M., MacKenzie, S.B. and Podsakoff, N.P. (2012), "Sources of method bias in social science research and recommendations on how to control it", *Annual Review of Psychology*, Vol. 63 No. 1, pp. 539-569, doi: [10.1146/annurev-psych-120710-100452](https://doi.org/10.1146/annurev-psych-120710-100452).
- Qian, Y. and Jiang, H. (2024), "The impacts of within-task and between-task personal internet usage on employee creative performance: the moderating role of perceived organisational support", *Internet Research*, Vol. 34 No. 5, pp. 1521-1544, doi: [10.1108/intr-09-2022-0751](https://doi.org/10.1108/intr-09-2022-0751).
- Rahimnia, F. and Karimi Mazidi, A. (2015), "Functions of control mechanisms in mitigating workplace loafing: evidence from an Islamic society", *Computers in Human Behavior*, Vol. 48, pp. 671-681, doi: [10.1016/j.chb.2015.02.035](https://doi.org/10.1016/j.chb.2015.02.035).
- Rahimnia, F., Eslami, Gh. and Nosrati, S. (2019), "Investigating the mediating role of job embeddedness: evidence of Iranian context", *Personnel Review*, Vol. 48 No. 3, pp. 614-630, doi: [10.1108/pr-11-2017-0348](https://doi.org/10.1108/pr-11-2017-0348).
- Rahimnia, F., Nosrati, S. and Eslami, G. (2022), "Antecedents and outcomes of job embeddedness among nurses", *The Journal of Social Psychology*, Vol. 162 No. 4, pp. 455-470.
- Rahman, M.F.W., Kistiyanto, A. and Surjanti, J. (2022), "Does cyberloafing and person-organization fit affect employee performance? The mediating role of innovative work behavior", *Global Business and Organizational Excellence*, Vol. 41 No. 5, pp. 44-64, doi: [10.1002/joe.22159](https://doi.org/10.1002/joe.22159).

- Resick, C.J., Baltes, B.B. and Shantz, C.W. (2007), "Person–organization fit and work-related attitudes and decisions: examining interactive effects with job fit and conscientiousness", *Journal of Applied Psychology*, Vol. 92 No. 5, pp. 1446-1455, doi: [10.1037/0021-9010.92.5.1446](https://doi.org/10.1037/0021-9010.92.5.1446).
- Rindfleisch, A., Malter, A.J., Ganesan, S. and Moorman, C. (2008), "Cross-sectional versus longitudinal survey research: concepts, findings, and guidelines", *Journal of Marketing Research*, Vol. 45 No. 3, pp. 261-279, doi: [10.1509/jmkr.45.3.261](https://doi.org/10.1509/jmkr.45.3.261).
- Ross, J. (2018), "Cyberloafing' in health care: a real risk to patient safety", *Journal of PeriAnesthesia Nursing*, Vol. 33 No. 4, pp. 560-562, doi: [10.1016/j.jopan.2018.05.003](https://doi.org/10.1016/j.jopan.2018.05.003).
- Runge, J.B., Hames, D.S. and Shearer, C.S. (2004), "The perceived cultural compatibility index: an extension", *The Leadership and Organization Development Journal*, Vol. 25 No. 5, pp. 411-423, doi: [10.1108/01437730410544737](https://doi.org/10.1108/01437730410544737).
- Sánchez-Cardona, I., Vera, M., Martínez-Lugo, M., Rodríguez-Montalbán, R. and Marrero-Centeno, J. (2020), "When the job does not fit: the moderating role of job crafting and meaningful work in the relation between employees' perceived overqualification and job boredom", *Journal of Career Assessment*, Vol. 28 No. 2, pp. 257-276, doi: [10.1177/1069072719857174](https://doi.org/10.1177/1069072719857174).
- Sarstedt, M., Hair, J.F. Jr, Cheah, J.H., Becker, J.M. and Ringle, C.M. (2019), "How to specify, estimate, and validate higher-order constructs in PLS-SEM", *Australasian Marketing Journal*, Vol. 27 No. 3, pp. 197-211, doi: [10.1016/j.ausmj.2019.05.003](https://doi.org/10.1016/j.ausmj.2019.05.003).
- Schneider, B. (1987), "The people make the place", *Personnel Psychology*, Vol. 40 No. 3, pp. 437-453, doi: [10.1111/j.1744-6570.1987.tb00609.x](https://doi.org/10.1111/j.1744-6570.1987.tb00609.x).
- Sheikh, A., Atashgah, M.S. and Adibzadegan, M. (2015), "The antecedents of cyberloafing: a case study in an Iranian copper industry", *Computers in Human Behavior*, Vol. 51, pp. 172-179, doi: [10.1016/j.chb.2015.04.042](https://doi.org/10.1016/j.chb.2015.04.042).
- Sheikh, A., Aghaz, A. and Mohammadi, M. (2019), "Cyberloafing and personality traits: an investigation among knowledge-workers across the Iranian knowledge-intensive sectors", *Behaviour and Information Technology*, Vol. 38 No. 12, pp. 1213-1224, doi: [10.1080/0144929x.2019.1580311](https://doi.org/10.1080/0144929x.2019.1580311).
- Soper, D.S. (2019), "A-priori sample size calculator for structural equation models [software]", available at: <https://www.danielsoper.com/statcalc/> (accessed 10 September 2023).
- Soral, P., Arayankalam, J. and Pandey, J. (2020), "The impact of ambivalent perception of bureaucratic structure on cyberloafing", *Australasian Journal of Information Systems*, Vol. 24, pp. 1-44, doi: [10.3127/ajis.v24i0.2087](https://doi.org/10.3127/ajis.v24i0.2087).
- Spira, J.B. and Feintuch, J.B. (2005), *The Cost of Not Paying Attention: How Interruptions Impact Knowledge Worker Productivity*, Basex, New York, NY.
- Steger, M.F., Dik, B.J. and Duffy, R.D. (2012), "Measuring meaningful work: the work and meaning inventory (WAMI)", *Journal of Career Assessment*, Vol. 20 No. 3, pp. 322-337, doi: [10.1177/1069072711436160](https://doi.org/10.1177/1069072711436160).
- Steger, M.F., Littman-Ovadia, H., Miller, M., Menger, L. and Rothmann, S. (2013), "Engaging in work even when it is meaningless: positive affective disposition and meaningful work interact in relation to work engagement", *Journal of Career Assessment*, Vol. 21 No. 2, pp. 348-361, doi: [10.1177/1069072712471517](https://doi.org/10.1177/1069072712471517).
- Suddaby, R., Cooper, D.J. and Greenwood, R. (2007), "Transnational regulation of professional services: governance dynamics of field level organizational change", *Accounting, Organizations and Society*, Vol. 32 Nos 4-5, pp. 333-362, doi: [10.1016/j.aos.2006.08.002](https://doi.org/10.1016/j.aos.2006.08.002).
- Tan, Z., Xia, Q., Yan, S., He, J. and Dong, J. (2024a), "How does negative work reflection impact cyberloafing? The chain-mediating effect of meaningful work and moral disengagement", *Current Psychology*, Vol. 43 No. 29, pp. 24678-24689, doi: [10.1007/s12144-024-06170-7](https://doi.org/10.1007/s12144-024-06170-7).
- Tan, Z., Yan, S., Xia, Q. and Zhang, Y. (2024b), "The relationship between servant leadership and cyberloafing: an investigation of meaningful work versus citizenship pressure", *European Journal of Work and Organizational Psychology*, Vol. 33 No. 4, pp. 1-16, doi: [10.1080/1359432x.2024.2331787](https://doi.org/10.1080/1359432x.2024.2331787).

- Tandon, A., Kaur, P., Ruparel, N., Islam, J.U. and Dhir, A. (2022), "Cyberloafing and cyberslacking in the workplace: systematic literature review of past achievements and future promises", *Internet Research*, Vol. 32 No. 1, pp. 55-89, doi: [10.1108/intr-06-2020-0332](https://doi.org/10.1108/intr-06-2020-0332).
- Triandis, H.C. (1977), *Interpersonal Behavior*, Brooks/Cole, Monterey, CA.
- Tymon, W.G. and Stumpf, S.A. (2003), "Social capital in the success of knowledge workers", *Career Development International*, Vol. 8 No. 1, pp. 12-20, doi: [10.1108/13620430310459478](https://doi.org/10.1108/13620430310459478).
- Ugrin, J.C. and Pearson, J.M. (2013), "The effects of sanctions and stigmas on cyberloafing", *Computers in Human Behavior*, Vol. 29 No. 3, pp. 812-820, doi: [10.1016/j.chb.2012.11.005](https://doi.org/10.1016/j.chb.2012.11.005).
- Usman, M., Javed, U., Shoukat, A. and Bashir, N.A. (2021), "Does meaningful work reduce cyberloafing? Important roles of affective commitment and leader-member exchange", *Behaviour and Information Technology*, Vol. 40 No. 2, pp. 206-220, doi: [10.1080/0144929x.2019.1683607](https://doi.org/10.1080/0144929x.2019.1683607).
- van der Deijl, W. (2024), "Two concepts of meaningful work", *Journal of Applied Philosophy*, Vol. 41 No. 2, pp. 202-217, doi: [10.1111/japp.12614](https://doi.org/10.1111/japp.12614).
- van Doorn, O.N. (2011), Cyberloafing: a multi-dimensional construct placed in a theoretical framework, Master's Thesis, Eindhoven University of Technology, Netherlands.
- Vandeplas, A. and Thum-Thysen, A. (2019), *Skills Mismatch and Productivity in the EU*, Publications Office of the European Union, Luxembourg.
- Wang, J., Tian, J. and Shen, Z. (2013), "The effects and moderators of cyber-loafing controls: an empirical study of Chinese public servants", *Information Technology and Management*, Vol. 14 No. 4, pp. 269-282, doi: [10.1007/s10799-013-0164-y](https://doi.org/10.1007/s10799-013-0164-y).
- Waters, N.M. and Beruvides, M.G. (2012), "An empirical study of large-sized companies with knowledge work teams and their impacts on project team performance", *Engineering Management Journal*, Vol. 24 No. 2, pp. 54-62, doi: [10.1080/10429247.2012.11431936](https://doi.org/10.1080/10429247.2012.11431936).
- Watson, D.L., Newton, M. and Kim, M.S. (2003), "Recognition of values-based constructs in a summer physical activity program", *The Urban Review*, Vol. 35 No. 3, pp. 217-232, doi: [10.1023/a:1025781603097](https://doi.org/10.1023/a:1025781603097).
- Westerman, J.W., Acikgoz, Y., Nafees, L. and Westerman, J. (2022), "When sustainability managers' greenwash: SDG fit and effects on job performance and attitudes", *Business and Society Review*, Vol. 127 No. 2, pp. 371-393, doi: [10.1111/basr.12273](https://doi.org/10.1111/basr.12273).
- William, L.T., Burch, T.C. and Mitchell, T.R. (2014), "The story of why we stay: a review of job embeddedness", *Annual Review of Organizational Psychology and Organizational Behavior*, Vol. 1 No. 1, pp. 199-216, doi: [10.1146/annurev-orgpsych-031413-091244](https://doi.org/10.1146/annurev-orgpsych-031413-091244).
- Yang, S.B. and Guy, M.E. (2011), "The effectiveness of self-managed work teams in government organizations", *Journal of Business and Psychology*, Vol. 26 No. 4, pp. 531-541, doi: [10.1007/s10869-010-9205-2](https://doi.org/10.1007/s10869-010-9205-2).
- Yusof, M.M., Ho, J.A., Imm, S.N.S. and Zawawi, D. (2019), "Weeding out deviant workplace behaviour in downsized organizations: the role of emotional intelligence and job embeddedness", *Asian Journal of Business Research*, Vol. 9 No. 3, pp. 115-144.
- Zagenczyk, T.J., Cruz, K.S., Woodard, A.M., Walker, J.C., Few, W.T., Kiazad, K. and Raja, M. (2013), "The moderating effect of machiavellianism on the psychological contract breach-organizational identification/disidentification relationships", *Journal of Business and Psychology*, Vol. 28 No. 3, pp. 287-299, doi: [10.1007/s10869-012-9278-1](https://doi.org/10.1007/s10869-012-9278-1).
- Zahmat Doost, E. and Zhang, W. (2024), "The effect of social media use on job performance with moderating effects of cyberloafing and job complexity", *Information Technology and People*, Vol. 37 No. 4, pp. 1775-1801, doi: [10.1108/itp-04-2022-0249](https://doi.org/10.1108/itp-04-2022-0249).
- Zhang, J., Akhtar, M.N., Zhang, Y. and Sun, S. (2019), "Are overqualified employees bad apples? A dual-pathway model of cyberloafing", *Internet Research*, Vol. 30 No. 1, pp. 289-313, doi: [10.1108/intr-10-2018-0469](https://doi.org/10.1108/intr-10-2018-0469).

- Zhang, Y., Bolino, M.C. and Yin, K. (2022), "The interactive effect of perceived overqualification and peer overqualification on peer ostracism and work meaningfulness", *Journal of Business Ethics*, Vol. 182 No. 3, pp. 699-716, doi: [10.1007/s10551-021-05018-5](https://doi.org/10.1007/s10551-021-05018-5).
- Zhong, J., Chen, Y., Yan, J. and Luo, J. (2022), "The mixed blessing of cyberloafing on innovation performance during the COVID-19 pandemic", *Computers in Human Behavior*, Vol. 126, 106982, doi: [10.1016/j.chb.2021.106982](https://doi.org/10.1016/j.chb.2021.106982).
- Zhou, B., Li, Y., Hai, M., Wang, W. and Niu, B. (2021), "Challenge-hindrance stressors and cyberloafing: a perspective of resource conservation versus resource acquisition", *Current Psychology*, Vol. 42 No. 2, pp. 1172-1181, doi: [10.1007/s12144-021-01505-0](https://doi.org/10.1007/s12144-021-01505-0).
- Zoghbi-Manrique-de-Lara, P. and Olivares-Mesa, A. (2010), "Bringing cyber loafers back on the right track", *Industrial Management and Data Systems*, Vol. 110 No. 7, pp. 1038-1053, doi: [10.1108/02635571011069095](https://doi.org/10.1108/02635571011069095).
- Zoghbi-Manrique-de-Lara, P., Verano Tacoronte, D. and Ting Ding, J.M. (2006), "Do current anti-cyberloafing disciplinary practices have a replica in research findings? A study of the effects of coercive strategies on workplace internet misuse", *Internet Research*, Vol. 16 No. 4, pp. 450-467, doi: [10.1108/10662240610690052](https://doi.org/10.1108/10662240610690052).
- Zolfaghari, S.H. (2005), *Stories of Proverbs*, 1st ed., Mazyar Publications, Tehran, (in Persian).

Corresponding author

Fariborz Rahimnia can be contacted at: r-nia@um.ac.ir