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ADDRESSING CYBERLOAFING THROUGH GAMIFICATION STRATEGY TO INCREASE PRODUCTIVITY IN THE DIGITAL ERA

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ABSTRACT

Introduction/Main Objectives: The digital era has led to cyberloafing behavior in the process of digital transformation, thereby reducing productivity. **Background Problems:** The increasing prevalence of cyberloafing behavior in the digital era presents a challenge. While it may alleviate boredom and stress, it can also lead to decreased workplace productivity if not appropriately managed. **Novelty:** The use of gamification strategies will be tested on cyberloafing factors towards increasing productivity. **Research Methods:** This study uses a quantitative approach. Data are collected using a questionnaire administered to a sample recruited using a purposive sampling technique. The total sample comprises 170 respondents who are employees in the micro, small and medium enterprise (MSME) business sector. The data is processed using SEM with the assistance of AMOS 24 software. **Findings/Results:** The findings in this study indicate positive and significant relationships between all variables and indicators. **Conclusion:** Cyberloafing behavior can be directed in a positive direction by increasing productivity through gamification strategies. This is because gamification addresses the psychological tendency of humans to become bored by creating a more pleasant work environment through interesting activities and experiences while still maintaining a focus on managerial goals through game design.

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INTRODUCTION

The advent of the digital age has provided amazing prospects for businesses. But these developments are occurring in tandem with several prominent societal problems. Business strategy has changed as a consequence of the digital era, but digital inequality has also become more prevalent (Liu et al., 2024). In addition, digital media use has become increasingly pervasive in everyday life, often blurring the boundaries between work and leisure. Excessive digital consumption has been shown to negatively affect work-related values and behaviors, while also contributing to challenges in managing digital well-being and information overload (Nguyen et al., 2024; Zafar et al., 2025).

One aspect of cyberculture is internet use at work for personal interests, namely cyberloafing. Specifically, cyberloafing is the intentional use of the internet during working hours for non-work related purposes (Jandaghi et al., 2015). Cyberloafing has both good and bad effects. Some of its advantages are countering boredom, stress, or fatigue, increasing job satisfaction, well-being, employee happiness, and providing a form of recreation for employees (Lim & Chen, 2012; Ozler & Polat, 2012). When not properly directed, however, cyberloafing can become a counterproductive work behavior, as employees may misuse the company's internet facilities for non-work-related purposes (Askew et al., 2014). It can also lead to procrastination and failure to fulfil work responsibilities (Yan & Yang, 2014).

Cyberloafing behavior can be influenced by workplace stress caused by role ambiguity, role overload, and role conflict (Andel et al., 2019; Koay et al., 2017; Ozler & Polat, 2012). For example, cyberloafing can increase when employees are uncertain about what actions must be taken to complete a job, are required to do things differently, or there is pressure to do the work within a given time-period (Aghaz & Sheikh, 2016).

In addition, self-regulation has an influence on cyberloafing behavior. Self-regulation is the ability of individuals to flexibly plan, guide, and monitor their behavior in the face of changing circumstances in order to achieve goals that have been set (Gökçearslan et al., 2016). More broadly, self-regulation is regulating oneself in life's tasks to be able to live well, including in terms of work. For employees, focusing on work goals requires self-regulation (Barnes, 2012). However, according to Durak (2020), as technology develops, there are many temptations that can distract people from completing their work.

Internet activities that should facilitate digital transformation from offline to online can in fact hamper work productivity (Lanzolla et al., 2021). A strategy is needed to effectively direct employee activities and enhance productivity, including updating managerial strategies and processes to maintain stability in the digital era of cyberloafing.

Notwithstanding the growing prevalence of cyberloafing behavior in online workplaces, scant research has investigated the extent to which gamification, a tactic often used in learning or consumer contexts, can be implemented in MSME settings to redirect cyberloafing behavior towards positive ends (Halim et al., 2024; Nivedhitha et al., 2024). This leaves an empirical and contextual research gap in the literature regarding the potential of gamification as a mitigating tool to address cyberloafing behaviors. This study seeks to bridge this knowledge gap by addressing the following research question on the impact of work stress, self-regulation, and work procrastination on cyberloafing, and how gamification can turn cyberloafing around to increase the productivity of MSME employees: *How can*

gamification strategies influence the factors driving cyberloafing behavior and subsequently improve productivity in MSMEs during the digital era?

LITERATURE REVIEW

1. Work Stress in Relation to Cyberloafing

Work stress is stress caused by work or factors related to work (Ganster & Rosen, 2013). It has been further defined by Khan et al. (2021) as pressure experienced by individuals because of the demands of work and organizations. Cyberloafing has been linked to abusive supervisors by Agarwal and Avey (2020). Conversely, leadership, specifically spiritual leadership, has been identified by Azmy (2024) as an important employee satisfaction factor. According to social exchange theory, stress arising from unbalanced organizational demands can lead employees to seek relief through coping mechanisms (Cropanzano & Mitchell, 2005) as this allows them to temporarily restore equilibrium in their work environment. Bolton et al. (2012) described the counterproductive work behaviors that arise when work demands exceed the individual's capacities, abilities, and needs. Relatedly, Pindek et al. (2018) explained that work stress has an influence on the emergence of cyberloafing, with Saleh (2018) also describing the impact of cyberloafing behavior from work stress on productivity. The following hypothesis is therefore proposed:

H1: Work stress has a positive effect on cyberloafing

2. Self-regulation in Relation to Cyberloafing

Self-regulation is an important aspect of personality that can regulate individuals in achieving their targets or goals. Zimmerman (2013) defined it as the ability to control one's own behavior and the use of a process. According to Werner and Milyavskaya (2019), self-regulation refers to an individual's ability to exercise self-control. In the context of learning where online social networking sites are used as learning tools, Durak (2020) and Jabid et al. (2023) explained student cyberloafing behavior in terms of short-term versus long-term goals, where a person will be satisfied quickly if their short-term goals have been met but then forget about long-term goals. However, this distraction can be overcome if individuals stay focused and minimize the temporary rewards of cyberloafing through self-control or self-regulation in favor of their long-term goals (Askew et al., 2014). For this reason, cyberloafing has less impact on people with high self-regulation, who can plan and adhere to life goals in a variety of situations. Such individuals can direct cyberloafing behavior to match the goals to be achieved, and monitor their behavior to stay on track (Wagner et al., 2012). In addition, Metin-Orta and Demirutku (2020) have reported that self-regulation plays a role in the relationship between cyberloafing behavior and the human ability to think, which allows individuals to manipulate the environment, resulting in environmental changes as a result of these activities. Accordingly, a second hypothesis is proposed:

H2: Self-regulation has a positive effect on cyberloafing

3. Work Procrastination in Relation to Cyberloafing

Research conducted by Woods (2014) found that the activity of cyberloafing in relation to accessing the internet led to positive feelings whereas opening personal emails led to negative feelings. Accessing the site is a means for employees to replenish their energy and in the process employees feel able to return to their work (Eerde, 2016). In contrast, opening email is

a cognitive task. Employees therefore need psychological resources to read and reply to the messages in personal emails, leading to the reduction of psychological resources that should be used to complete their work (Lim et al., 2021). This cyberloafing behavior thus gives rise to negative affect for employees, which then results in employees procrastinating (Lim et al., 2019). The influence of cyberloafing behavior on work procrastination is a form of work deviation. Specifically, employees come to prefer accessing the internet during working hours for personal purposes rather than fulfilling their obligations as employees in starting and completing work (Derks et al., 2015). As a result, work becomes neglected and is not completed in the allotted time, leading to H3.

H3: Work procrastination has a positive effect on cyberloafing

4. Cyberloafing in Relation to Gamification

Gamification theory suggests that the application of game design elements in non-game contexts can motivate individuals by leveraging psychological rewards, fostering engagement, and channeling behaviors like cyberloafing into productive activities (Hamari & Koivisto, 2015). Studies have explored channeling cyberloafing behavior through gamification approaches employing extrinsic motivation and/or intrinsic rewards (Oravec, 2015). Simple strategies such as point and level schemes for ranking and feedback can be implemented (Manzano-León et al., 2021), as well as challenges aimed at increasing the level of implementers, motivational badges or rewards (Richter, 2015), and leaderboards that stimulate competitiveness and continuous improvement. Alternatively, other game design elements can be applied (Hamari, 2017), for example, thinking games and game mechanics in non-game contexts. Employees who engage in cyberloafing to overcome boredom at work (Pindek et al., 2018) have been shown to be naturally inclined to gravitate towards gamification features because these features offer a structured and stimulating alternative to non-work-related digital activities, thereby fulfilling their intrinsic motivation to engage. Rather than affecting gamification as a system itself, cyberloafing may increase employees' participation in gamification strategies as they seek engaging and interactive ways to redirect their digital behaviors within a structured work environment.

Furthermore, prior research has found gamification can harness cyberloafing behavior in a way that helps managers, employees, and customers (Akar & Coskun, 2020; Oravec, 2015). It can provide an understanding of digitalization and develop skills such as teamwork, and procedural and collaborative best practices in managerial practice. Another study of the gamification model found that job control was positively related to the use of computer games at work, which showed significant recovery potential (Reinecke, 2019). The above findings lead to H4:

H4: Cyberloafing has a positive effect on gamification

5. Gamification and Productivity

Gamification, as it is currently understood in the business world, refers to the application of game mechanics to the workplace (Kumar, 2013). Gamification was studied by Epstein et al. (2021) to increase understanding of how it can be implemented at a practical level in organizations. Another study concluded that gamification programs can increase productivity (Brull et al., 2017). Companies have used gamification elements like points, rewards, levels, and leaderboards to boost organizational productivity (Kim, 2021). Korn et al. (2015) provided an overview of how to use gamification

in a work environment, such as a call center, to help agents and supervisors manage their performance. The gradual introduction of game mechanics in the work environment has also been studied. The researchers concluded that gamification as a means rather than a goal can still increase productivity (Gerdenitsch et al., 2020). Systematically introducing games in the work environment to make work fun has shown positive effects on intrinsic motivation (Dale, 2014). This is in line with behavioral reinforcement theory (Schoenfeld, 1978), whereby elements like points, rewards, and levels serve to reinforce desired behaviors by providing positive feedback, which encourages employees to repeat these behaviors, ultimately increasing productivity. Gamification has been used in the workplace to motivate transparency and productivity. Gamification can also create a sense of belonging among team members regarding their contribution to work teams and organizations (Webb, 2013). Thus, the final hypothesis is:

H5: Gamification has a positive effect on productivity.

METHOD, DATA, AND ANALYSIS

1. Samples and Data Collection

Data for this study were gathered from employees from the D.I. Yogyakarta region of Indonesia. Respondents were employees working for micro, small, and medium enterprises (MSME). They were recruited using a purposive sampling technique with specific criteria (Creswell, 2019), based on the definition of productivity through technology by Saputra et al. (2021) and being employed by an MSME. These criteria included (but were not limited to): employees who had worked for at least two years, who were permanent employees involved in digital work, and who understood how to use digital tools.

The study employed the quantitative strategy of structural equation modeling in the AMOS 24 application, with a series of exploratory and confirmatory factors analyzed to determine the relationship between variables. Data collection methods included questionnaires and interviews. Respondents filled out questionnaires and then a representative sample from among the pool of 170 respondents was interviewed in person.

2. Control Variable

The relationship between work stress, self-regulation, procrastination, cyberloafing, gamification, and productivity was investigated while controlling for firm characteristics such as size. Company size is among the most important factors influencing productivity, with empirical evidence showing this is especially true for small and medium-sized businesses (Farooq et al., 2021; Rogers, 2004; Rothwell, 1983). Company size was thus included in the study as a theoretical control variable. Based on the literature review, the framework for this study explains the importance of work stress, self-regulation, and work procrastination in relation to cyberloafing, and in turn gamification to increase productivity.

3. Construction Measurement

This study made use of primary data gathered by the researchers through a survey. The questionnaire assessed the six constructs by assigning a rating of 1 to 5 to respondents' responses (Sekaran & Bougie, 2020). A score of one represents the most negative answer, while a score of five represents the most positive answer. Twenty-two items were used to measure the six variables as shown in Table 1. The majority of the items were adapted from existing literature, with some modifications to suit the research context.

Figure 1. Research Framework

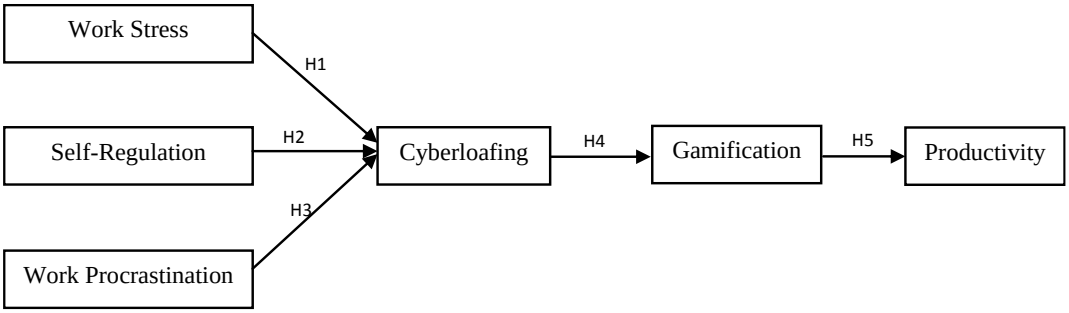


Table 1. Construct Measurement

Construct	Indicator/Item	Authors
Work Stress (WS)	Environmental Factor (WS1) Organizational Factor (WS2) Personal Factor (WS3)	(Agarwal & Avey, 2020; Bolton et al., 2012; Ganster & Rosen, 2013; Khan et al., 2021; Pindek et al., 2018; Saleh, 2018)
Self-regulation (SR)	Metacognitive (SR1) Motivation (SR2) Positive Action (SR3) Negative Action (SR4)	(Askew et al., 2014; Durak, 2020; Werner & Milyavskaya, 2019; Zimmerman, 2013)
Work Procrastination (WP)	Perceived Time (WP1) Perceived Deadline (WP2) Intention Action (WP3) Perceived Priority (WP4)	(Eerde, 2016; Lim et al., 2019; Woods, 2014)
Cyberloafing (CL)	Development Behavior (CL1) Recovery Behavior (CL2) Deviant Behavior (CL3) Addiction Behavior (CL4)	(van Doorn, 2011; Oravec, 2015)
Gamification (GF)	Points (GF1) Rewards (GF2) Levels (GF3) Leader boards (GF4)	(Hamari, 2017); (Richter, 2015); (Manzano-León et al., 2021)
Productivity (Pro)	Quantity (PRO1) Quality (PRO2) Punctuality (PRO3)	(Brull et al., 2017); (Kim, 2021); (Korn et al., 2015)

Source: Authors' analysis

Based on the hypothesizing for the study, work stress, self-regulation, and work procrastination were proposed to affect cyberloafing behavior, which in turn has an impact on the effectiveness of gamification in increasing employee productivity. Specifically, high levels of work stress, whether due to environmental, organizational, or personal factors, can encourage employees to engage in cyberloafing as a form of escape. Conversely, good self-regulation can help employees reduce these behaviors, while work procrastination actually increases the tendency to engage in cyberloafing. Further, cyberloafing can affect employees' acceptance of gamification elements, such as points, levels, or leaderboards designed to motivate them. Finally, the effective implementation of gamification is expected to increase employee work productivity in terms of

quantity, quality, and timeliness of job completion.

The model and hypotheses were tested using structural equation modeling (SEM) with the AMOS Program. Convergent validity was used in the measurement model to determine whether the indicators were valid. Furthermore, the indicators' significance had to be tested to see if they provided similar dimensions for the latent variables. SEM was then similarly used to test the parameters based on goodness of fit and then the research hypotheses in terms of the causality relationships depicted in the model (Ghozali, 2014). To assess model fit, several fit indices were applied, including RMSEA (root mean square error of approximation), CFI (comparative fit index), and TLI (Tucker-Lewis index) (Hu & Bentler, 1999).

The study used the maximum likelihood estimation (MLE) technique. A total of 170 responses was used, which satisfied the recommended sample size requirement when applying MLE and the average variance extracted (AVE) criteria, where 150 is the minimum number of responses to achieve a standardized loading estimate of less than 0.7 and communality score of 0.5 (Sekaran & Bougie, 2020).

Table 1 details the constructs and the question items used. Ideally, each construct's loading value should exceed the 0.6 cut-off point and extracted variance (VE) value should exceed the determined critical value of 0.5. Table 2shows the construct validity value, variance extract, and discriminant validity (DV) for work stress, self-regulation, work procrastination, cyberloafing, gamification, and productivity. DVs were calculated using the determined values, with the results indicating construct reliability (CR) was greater than 0.7, AVE was greater than 0.5, and DV was greater than 0.7 (Charter, 1999; Fornell & Larcker, 1981).

RESULTS AND DISCUSSION

For the demographic analysis (Table 2), the researchers analyzed respondent profile data including gender, age, level of daily internet use, and respondent answers to common questions about the marketplace.

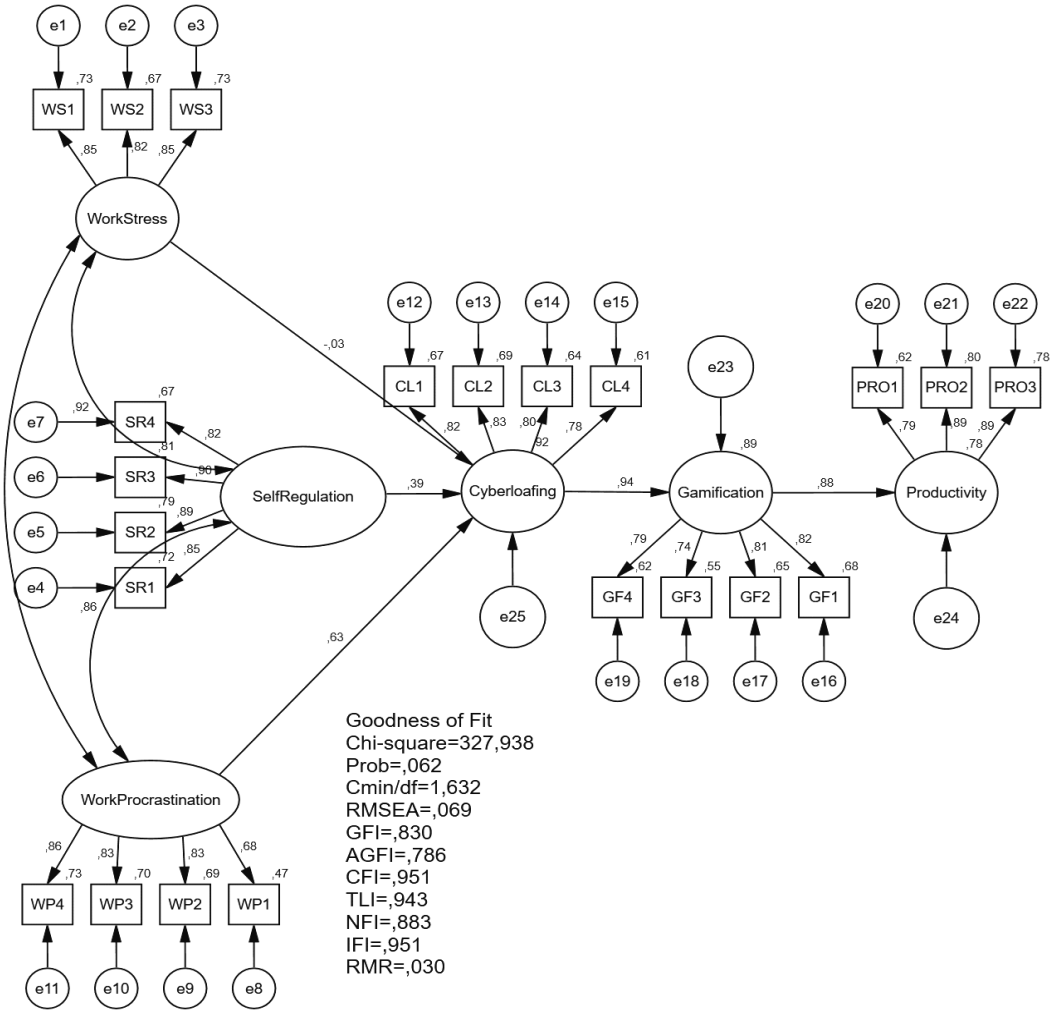
Table 2. Demographic Analysis

Category	Frequency	percentage
Gender		
Female	36	17.3%
Male	134	82.7%
Total	170	100%
Age		
<20	4	2.7%
21-30	135	90%
31-40	10	6.6%
>40	1	0.7%
Total	170	100%
Hours Spent Using the Internet Each Day		
<1 hour	0	-
1-3 hours	22	14.6%
3-5 hours	57	38%
5-10 hours	43	28.7%
>10 hours	28	18.7%
Total	170	100%

Source: Authors analysis (2023)

Table 3 shows the test results for the goodness of fit between work stress, self-regulation, and work procrastination in relation to cyberloafing and the related potential of gamification to increase productivity. As shown, the goodness-of-fit criteria were met x2 to 327,938, with a probability value of 0.062. The highest GFI score was 0.830, followed by the AGFI (0.786), CFI (0.951), TLI (0.943), NFI (0.883), IFI (0.951), RMSEA (0.069), and RMR (0.030). These scores all met the required cutoffs, thus confirming the robustness of the research model.

Figure 2. Relationship Model as a Whole



Source: Analysis using SEM and AMOS (2023)

Table 3. The Goodness of Fit Index

The goodness of Fit Index	Cut Off Value	Research Model	Type
X2 Chi-Square	Small expected	327.938	***Good Fit***
Significant Probability	≥ 0.05	.062	***Good Fit***
CMIN/DF	≤ 2.00	1.632	***Good Fit***
GFI	≥ 0.90	.830	***Marginal Fit***
AGFI	≥ 0.90	.786	***Marginal Fit***
CFI	≥ 0.90	.951	***Good Fit***
TLI	≥ 0.90	.943	***Good Fit***
NFI	≥ 0.90	.883	***Marginal Fit***
IFI	≤ 0.90	.951	***Good Fit***
RMSEA	≤ 0.08	.069	***Good Fit***
RMR	≤ 0.05	.030	***Good Fit***

Source: SEM AMOS analysis (2023)

The correlations between work stress, self-regulation, work procrastination, cyberloafing, gamification, and productivity are all positive and significant. To demonstrate, the value (represented on the diagonal in Table 4) must be greater than the corresponding correlation of latent variables in the same row and column. These conditions are met, meaning that variance is divided between work stress, self-regulation, work procrastination, cyberloafing, gamification, and productivity, as indicated by the correlations with scale items.

Table 4 depicts the standard line coefficients for the relationships between work stress, self-regulation, procrastination, cyberloafing, gamification, and productivity. The results for all six constructs show standardized factor loading > 0.5, CR > 0.7, AVE > 0.5, and DV > 0.7, thus meeting the criteria for further investigation.

The hypotheses developed in this study concern the interplay between aspects of work stress, self-regulation, and work procrastination in relation to cyberloafing and, in turn, the potential of gamification to increase productivity.

Table 5 summarizes the study findings in relation to the five hypotheses. The overall contention of this study is that work stress, self-regulation, procrastination, cyberloafing, gamification, and productivity are all linked. The t-values and probability results indicate the strength and significance of each construct.

Table 4. Robustness of Measurement Scale Items

Construct	Items	Standardized Factor Loading	Cr	Ave	Dv
Work Stress	WS1	.85	.843	.736	.716
	WS2	.82			
	WS3	.85			
Self-regulation	SR1	.85	.865	.724	.702
	SR2	.89			
	SR3	.90			
	SR4	.82			
Work Procrastination	WP1	.68	.738	.718	.732
	WP2	.83			
	WP3	.83			
	WP4	.86			
Cyberloafing	CL1	.82	.826	.725	.728
	CL2	.83			
	CL3	.80			
	CL4	.78			
Gamification	GF1	.82	.748	.725	.728
	GF2	.81			
	GF3	.74			
	GF4	.79			
Productivity	PRO1	.79	.842	.776	.752
	PRO2	.89			
	PRO3	.89			

AVE (Average Variance Extracted) >0.7 (meets criteria); CR (Construct Reliability) >0.5 (meets criteria); DV (Discriminant Validity) > 0. 7 (meets the criteria)

Source: SEM AMOS analysis (2023)

Table 5. The Result of Hypotheses

			Estimate	S.E.	t-value	P	Result
Cyberloafing	⇦	Work Stress	.329	.177	2.162	.031	Significant
Cyberloafing	⇦	Self-Regulation	.349	.158	2.207	.027	Significant
Cyberloafing	⇦	Work Procrastination	.744	.158	4.699	***	Significant
Gamification	⇦	Cyberloafing	.805	.076	10.539	***	Significant
Productivity	⇦	Gamification	.969	.109	8.867	***	Significant

Source: SEM AMOS analysis (2023)

Table 5 models the structural pathways for the relationships between work stress, self-regulation, work procrastination, and cyberloafing. As the results show, there are positive relationships between work stress, self-regulation, work procrastination and cyberloafing (t = 2,162 > 1.96, 2,207 > 1.97, and 4,699 > 1,96), with strong significance at 0.031 < 0.05, 0,27 < 0.05, and 0.000 < 0.05 respectively. In addition, the structural track results indicate a significant and positive relationship between cyberloafing and gamification (t = 10,539 > 1.96), with 0.000 < 0.05 significance. The structural track results also indicate a significant positive relationship between gamification and productivity (t = 8,867 > 1.96), at 0.000 < 0.05 significance.

The squared multiple correlation (SMC) calculates how much of the variance in the dependent variable is explained by the independent variables. Table 6 shows the results of the SMC for the study's dependent variable. The estimated value of the gamification variable is 0.92, indicating that 92% of the variance comes from the work stress, self-regulation, and work procrastination variables, with the remaining 8% influenced by other factors. The estimated value of the gamification variable is 0.89, indicating that work stress, self-regulation, work procrastination, and cyberloafing variables contribute 89% of the variance, with other factors influencing 11%. The productivity variable has an estimated value of 0.78, indicating that the work stress, self-regulation, work procrastination, cyberloafing, and gamification variables contribute 78% of the variance, while other factors influence 22%.

Table 6. Squared Multiple Correlation

	Estimate
Cyberloafing	.92
Gamification	.89
Productivity	.78

Source: SEM AMOS analysis (2023)

The results of the analysis show that cyber-loafing behavior is positively and significantly influenced by work stress. Work stress is closely related to the pressures individuals feel as a result of work-related requests and conditions, alongside organizational factors including changes in managerial situations that create economic uncertainty, with effects on cyber-loafing as shown in research by Andel et al. (2019)) and Wulandari and Husna (2021). In addition, organizational factors can cause stress by putting pressure on employees to avoid mistakes or to complete tasks by delegating them based on their role in the organization. In contrast, transformative leadership positively influences perceptions of organizational support (Wibowo et al., 2024). Prior studies have examined how workplace-related factors are associated with cyberloafing through different mechanisms. For example, Lim et al. (2021) investigated the indirect effects of abusive supervision on cyberloafing via emotional

exhaustion, moderated by organizational commitment, while Wang et al. (2013) examined the role of positive workplace factors in relation to cyberloafing. However, as stated by Ozler and Polat (2012), personal factors also trigger cyberloafing behavior, including family problems, financial problems, and innate personality traits.

A positive and significant influence is also caused by individuals with high self-regulation who demonstrate cyberloafing behavior but remain able to plan life goals flexibly in a variety of situations. This process is influenced by the metacognitive model of self-regulation described by (Zimmerman, 2013). This holistic approach to understanding the self-regulatory thinking process involved in planning and setting goals includes knowledge and metacognitive processes. In turn, the application of metacognitive processes will result in perceptions of self-efficacy and affect. Gökçearslan et al. (2016) studied the cognitive processes involved in self-regulation in relation to smartphone addiction versus cyberloafing among university students. This process is influenced by the metacognitive model of self-regulation described by (Zimmerman, 2013), which emphasizes goal setting, self-monitoring, and self-efficacy as key components of self-regulated behavior. Motivation is closely linked to these processes, as it plays a central role in sustaining goal-directed behavior.

Motivation is a function of the basic need to control and is related to abilities that exist in everyone. The same point was also made by Wagner et al. (2012). Zimmerman (2013) added that the advantage of motivation is that the individual has an interest in positive action and tries diligently to create a favorable environment. It is important to harness motivation by creating a managerial environment where negative actions can be avoided through achieving the expected goals.

The study results show that procrastination also contributes to cyberloafing behavior, and the two are positively related. This confirms previous findings linking employee cyberloafing to jobs that are both difficult and time-consuming. In addition, procrastination affects cyberloafing behavior, with perceived delays to starting or completing work tasks at hand, as reported by Durak (2020) in relation to university students and online learning activities. A person who procrastinates knows that the task at hand must be completed immediately. However, they delay starting work on it or even though this will delay completing the task. Further, perceived deadlines have been associated with task delay tendencies (Lie et al., 2023; Yan & Yang, 2014). A person who procrastinates takes longer to do the task than it would otherwise require. The intention action lag results in a time gap between the plan and actual performance, which will result in cyberloafing behavior. In a study of millennials, Chavan et al. (2021) described cyberloafing in terms of perceived priority in attaching importance to and doing other activities that are more fun than doing tasks that must be done.

This study has showed that cyberloafing behavior can be channeled through gamification schemes based on extrinsic assistance and intrinsic rewards to produce positive and significant effects. Van Doorn (2011) identified three influential factors in cyberloafing, namely organization, work, and personality. More recent research shows that systems and activities are changing with the digital exploration stage of the cyberloafing cultural trend, with implications for information security (Hadlington & Parsons, 2017). For this reason, gamification is a very appropriate strategy for managerial practice because it is simple, entertaining, fun, and an interesting way to develop productivity, as shown by Akar and Coskun (2020) and (Oravec,

2015). The application of gamification can also motivate and lead users to a positive understanding of exploration in digitization (Küpper et al., 2021). Gamification therefore offers opportunities to be creative and innovative in managerial activities to deal with the significant changes occurring in the current digital era.

According to Manzano-León et al. (2021) and as confirmed by the findings of the current study, simple gamification strategies such as points and ranking schemes, feedback, and challenges can be implemented. Badges or awards can also be distributed to motivate and reinforce behavior, as reported by (Richter, 2015). It is also evident from the findings that leader boards can stimulate competitiveness and continuous improvement while thinking games and game mechanics in non-game contexts are examples of additional game design elements (Hamari, 2017). Furthermore, gamification can harness cyberloafing behavior as a means of helping managers, employees, and customers to understand digitalization and develop productivity skills such as teamwork, as well as procedural and collaborative best practices in managerial practice.

In the context of managerial activities, gamification's relevance can be seen in the context of strategies for dealing with cyberloafing. Gamification has been successfully used by GOJEK companies with GO-POINTS and Waze with Levelling applied as strategies to increase user engagement and employee morale (Saputra & Rahmatia, 2021). Cyberloafing can thus be directed towards a positive path with a gamification strategy. Furthermore, increased workforce and socialization skills are required to combat cyberloafing, which arises the human tendency to become bored.

The gamification strategy is also able to address the conditions leading to boredom and stress among employees in the digital era. In addition, it can make work more enjoyable by creating activities and experiences that are more interesting but still focused on managerial goals (Kim, 2021). Employee internet activity can be directed away from cyberloafing with the aim of facilitating work and increasing work productivity (Kwahk & Park, 2016). Studies by Mutmainnah et al. (2022) and Kurniawan et al. (2021) have all confirmed the positive impact of directive leadership on innovative work behavior through the mediating role of continuous commitment. The existence of effective policies that increase their commitment to work will make employees less likely to cyberloaf. Systematically introducing games in the work environment will make work fun, providing intrinsic motivation. As shown in this study, gamification can be used in the workplace to motivate transparency and productivity, thereby helping urn the cyberloafing trend around.

CONCLUSION AND SUGGESTION

The digital era has been marked the social phenomenon of digital lives. The resulting shift in interpersonal relationships and communication, and interactions within groups, organizations, and even the public has resulted in a change in social reality from offline to online and the rise of cyberloafing at work. Employee productivity in the MSME sectors has decreased as a result. With the intersection of humans, devices, and the internet, personal lives are now carried out in cyberspace. Additionally, work-related stress and the associated procrastination behavior have both contributed to the emergence of cyberloafing. To combat cyberloafing behavior and maintain business stability, gamification offers an appropriate strategy to turn cyberloafing in a positive direction and increase productivity. Game design can be used to create a more pleasant work environment through more interesting activities and experiences to engage

boredom-prone individuals towards achieving managerial goals.

In addition, the study has shown that methods such as t-test or empirical discrimination analysis can be applied to develop robust research results confirming the benefits of the gamification strategy. Future research into cyberloafing behavior and gamification strategies can explore managerial activities beyond human resources, extending the research implications to marketing, finance, and business operations during unexpected events. Thus, addressing cyberloafing behavior in the gamification model is more than just a passing fad; it is a major trend that should be considered in current and future managerial strategies for dealing with digital era cultures.

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