

Cyberloafing and Information Technology in the Workplace: Mapping the Scientific Evolution and Emerging Themes

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Abstract. This systematic literature review investigates the evolution of research on cyberloafing behavior and its interplay with information technology (IT) in the workplace. Through a bibliometric analysis of 208 peer-reviewed journal articles published between 2002 and 2024, the study provides a comprehensive overview of this research domain's distribution and thematic landscape. Data from the Scopus database is analyzed using VOSviewer software to carry out co-authorship, co-occurrence, and citation. Apart from that, the identification of dominant themes was also carried out to highlight important topics in the concept of cyberloafing behavior and the existence of technology. The findings reveal a significant increase in publications focused on cyberloafing, particularly since 2020, highlighting the growing importance of this topic. Co-authorship and co-occurrence analyses identify key clusters and themes, including the role of personal traits, organizational factors, emotional exhaustion, and work-related attitudes in influencing cyberloafing behavior. The study also highlights the relationship between cyberloafing, IT adoption, security risks, and productivity implications. The results underscore the need for interdisciplinary and cross-cultural research to explore the nuances of cyberloafing and develop effective strategies for mitigating its potential negative impacts in the digital workplace. It is hoped that this research can generate ideas for developing a conceptual research framework in the future related to the concept of cyberloafing behavior and the involvement of information technology in the workplace.

Keywords: cyberloafing, behavior, information technology, workplace, bibliometric

1. Introduction

In the digital era, where technology has become an integral part of our lives that cannot be separated, the phenomenon of cyberloafing has emerged as a common behavior among employees and individuals. Cyberloafing can be defined as the act of using an internet-connected device, such as a computer or smartphone, for personal activities during work or study hours, instead of focusing on the assigned task. Lim, (2002) has become a prevalent issue in modern workplaces. With the proliferation of social networking sites and online entertainment platforms, individuals are increasingly tempted to abandon their personal, professional, or academic responsibilities to immerse themselves in the virtual world of the internet. (Durak, 2020; Elciyar & Simsek, 2021; Karaođlan Yilmaz et al., 2015). This behavior is often characterized by spending excessive time on social media platforms, browsing online shopping sites, watching videos, playing games, or engaging in other online activities that are unrelated to work. The temptation to engage in cyberloafing can be powerful, as individuals seek instant gratification and distraction from daily tasks (Askew et al., 2014; Karimi Mazidi et al., 2020). As organizations increasingly rely on information technology (IT) to support their operations, it is crucial to understand how the availability and use of IT resources may influence cyberloafing behavior among employees.

The research has shown that cyberloafing not only impacts individual productivity but also impacts organizational performance. Employees who cyberloaf during work hours will likely experience decreased productivity and job satisfaction (Batabyal & Bhal, 2020; Koay & Soh, 2018). Additionally, cyberloafing may pose an information security risk to organizations, as employees may engage in potentially harmful online activities such as visiting unsafe websites or downloading unauthorized software. (Lieberman et al., 2011; Wagner et al., 2021). To solve the problem of cyberloafing, organizations can implement policies and strategies that encourage responsible internet use (Novianti & Roz, 2023). This could include providing clear guidelines regarding acceptable internet use during work hours, monitoring internet activity, and offering training on maintaining focus and discipline while working. (Andel et al., 2019; Restubog et al., 2011) Additionally, fostering a positive work environment that encourages open communication and provides opportunities for rest and relaxation can help reduce employees' temptation to engage in cyberloafing.

On an individual level, practicing self-discipline and time management can help reduce the urge to cyberloaf. Setting specific times for personal internet use, utilizing website blockers or productivity apps, and seeking support from coworkers or supervisors can support individuals in maintaining focus and fulfilling their responsibilities without being affected by the distractions of cyberloafing (Aghaz & Sheikh, 2016; Jia et al., 2013; Metin et al., 2023). Additionally, individuals should strive to prioritize their tasks and allocate specific time for work and recreational activities. By managing their time effectively and maintaining a balance between work and personal activities, individuals can avoid the pitfalls of cyberloafing and optimize their productivity. Cyberloafing, the act of carrying out non-work-related online activities during work hours, has become a common issue in today's digital era. Although over time there has been an increase in research on the topic of cyberloafing and information technology, there is a lack of comprehensive analysis and synthesis of existing literature, especially regarding the interaction between cyberloafing and information technology in the workplace. This systematic observation aims to address this gap by providing a comprehensive perspective. holistic view of the distribution and evolution of research in this field. This research aims to provide a universal picture of cyberloafing behavior and the relationship between information technology in the workplace which is often found in various countries, including the research country, namely Indonesia.

2. Literature Review

Cyberloafing

Cyberloafing refers to an employee's use of the internet during work hours for personal activities unrelated to their job duties (Lim et al., 2002). This behavior is becoming more common with the rise of digital technology and internet access in the workplace. Understanding cyberloafing is critical for organizations looking to increase productivity and manage employee behavior effectively. (Betts et al., 2014; Ugrin & Pearson, 2013) Cyberloafing, a term derived from the words "cyber" (referring to the internet) and "loafing" (meaning avoiding work), covers a variety of activities such as browsing social media, shopping online, reading the news, or using personal email during work hours. This is a form of counterproductive work behavior (CWB) which can have an impact on overall organizational performance. Cyberloafing is also interpreted as the behavior of using existing facilities such as the company's internet network for personal interests (Blanchard & Henle, 2008).

There is a debate when an employee in an organization or agency commits cyberloafing. Some research findings reveal that workplace behavior has a positive impact, while other findings from empirical research show a negative impact (Askew et al., 2014; Karaođlan Yilmaz et al., 2015). There is still a gap among researchers. Some of the positive impacts felt are that cyberloafing behavior allows employees to take a mental break which can prevent stress and reduce fatigue, formal learning where employees may be involved in activities that are indirectly beneficial to their professional skills and knowledge. While the negative impacts such as reduced productivity, time spent on non-work related activities reduce task completion and overall productivity, these security risks are increased exposure to cyber threats and potential data breaches, as well as tension in the workplace (Novianti & Roz, 2023). This can lead to conflict among employees who consider cyberloafing to be unfair or detrimental to team performance.

Information Technology

Information Technology (IT) is the scope of the use of computers and software to manage information data. IT covers various aspects, including software development, system design, network management, and data security. In this digital era, IT has become an integral element of almost every sector of life, from education, health, and business, to government (Fajar & Amri, 2022; Hayu et al., 2020). Information technology (IT) Refers to the use of computers, hardware, and software to manage information. IT includes a variety of technologies used to create, store, exchange, and use information in various forms. It is the foundation of many aspects of modern life, from business and education to government and entertainment (Lim et al., 2002) . Information technology is defined as something that can process, compile, store, and play a role in manipulating data which produces information that has the quality to support decisions. (Abdelkader & Abed, 2016).

Information technology allows organizations to increase operational efficiency by saving business processes, reducing human error, and saving time (Sibanda & Ramrathan, 2017) . In practice, the use of information technology has a positive impact on both individuals and organizations. states that organizations can gain various benefits if their information technology infrastructure is well-designed and managed (Sastriawanto et al., 2024; Sawitri et al., 2019; Tawalbeh, 2024)

Relationship Cyberloafing Behavior and Information Technology

The development of information technology (IT) has brought many significant changes in various aspects of life, including the work environment. IT makes communication, access to information and collaboration between employees easier, as well as increasing work efficiency and productivity (Lim & Chen, 2012). However, these technological advances have also given rise to a new phenomenon known as "cyberloafing". This phenomenon creates a dilemma for company management because it can have an impact on productivity and work ethics. In general, the relationship between IT and cyberloafing can be seen from two perspectives: positive and negative (Batabyal & Bhal, 2020). From a positive

perspective, IT provides flexibility to employees to better manage their work time. Employees can access the information and resources they need quickly, and communicate with coworkers or clients efficiently (Alanoğlu & Karabatak, 2021),

In some cases, short breaks to engage in cyberloafing activities can help reduce stress and increase employee creativity and well-being. For example, research shows that short breaks from surfing the internet can provide an opportunity for the brain to rest and return with renewed energy to complete complex work tasks. (Batabyal & Bhal, 2020; Kalejaiye Peter & Hamed Sodiq, 2021). However, from a negative perspective, cyberloafing can lead to decreased work productivity and discipline. When employees spend too much time on non-work activities, time that should be spent completing tasks is wasted. This doesn't just impact individual performance (Karaolan Yilmaz et al., 2015), but it can also impact teams and organizations as a whole. Additionally, cyberloafing can also pose security concerns, especially if employees access unsecured websites or share sensitive information via unprotected platforms. (Jandaghi et al., 2015)

3. Methodology

This research uses a bibliometric approach to investigate, track, and evaluate authors, journal works, and countries related to cyberloafing behavior which has been widely used in business research, especially in organizational behavior and human resources as well as in the field of psychology. An approach using bibliometrics is a suitable strategy for evaluating and analyzing published academic literature (V. N. J. Eck & Waltman, 2010). Many aspects and criteria can be taken into consideration, including the number of publications, citations, social networks, or collaboration between authors, topics, trends, and important subjects in this article. Researchers carried out data analysis assisted by VOSViewer software to view co-authors, co-occurrences, and quotations. VOSViewer software can be used as an alternative to differentiate and compare various considerations that have previously been explained by researchers (N. J. Van Eck & Waltman, 2007). To obtain the required data from the Scopus database, the researchers used keywords and boolean operators specifically 'cyberloafing' AND 'information technology' AND 'workplace' which is illustrated in Figure 1. Researchers used a 5-stage technique adopted from the research results. After determining the previously determined keywords, analysis results obtained were approximately 314 articles from the initial search. In addition, researchers carry out article metadata and modify them into CSV files and RIS format files. This is used to make it easier to identify the articles collected. The information and components obtained consist of journal details such as year of publication, volume, pages and publisher. The second step taken was to filter and capture according to criteria previously determined by the researcher which were published in English and the output was in the form of a journal, not the results of a conference or book chapter, resulting in 208 articles that were ultimately analyzed further using VosViewer software. from 2002-2024. Articles that did not explicitly address cyberloafing behavior or its relationship with information technology were excluded from the analysis.

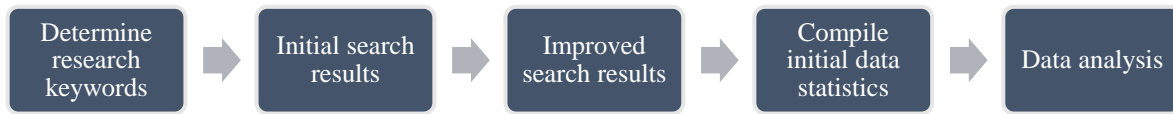


Fig.1: Bibliometric Analysis Stages (Tranfield et al., 2003)

4. Results

Article Information Data Results

Based on the results of the analysis carried out by researchers, the results in Table 1 below provide information that there are 208 relevant research published in reputable journals. The trend that focuses on discussing and researching cyberloafing starts from 2002 to 2024.

Table 1. Articles Information Data

Description	Results
Timespan	2002- 2024
Sources (journals)	208
Documents	208
Articles in English	208

source: own

Gradual growth occurred starting from the initial emergence of the cyberloafing trend in 2002. Figure (2) shows an increase in research publications related to cyberloafing behavior in the last 22 years. This shows that the topic is worth researching in more depth. The significant increase occurring from 2020 to 2023 shows that cyberloafing behavior has become a special concern. This can be explained in this case from the new era where the Covid pandemic occurred to the normal era which required someone to complete their tasks without having to be indoors either in the organization or workplace.

Publication Trends

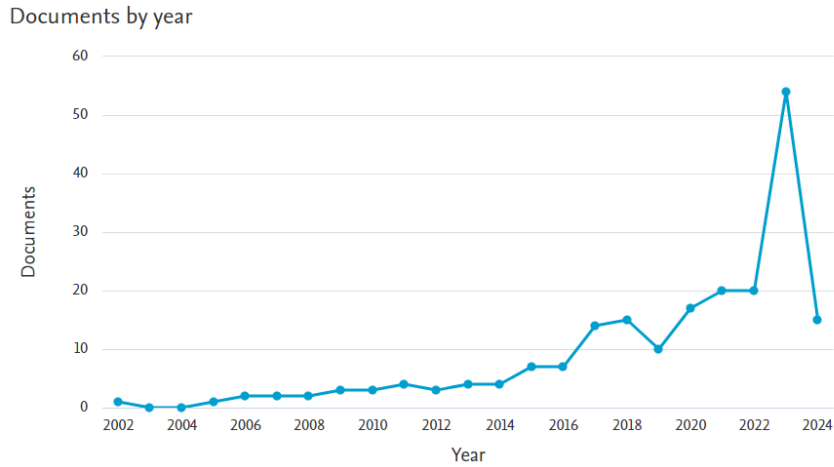


Fig.2: Numbers of papers by years

Figure 3 explains that the United States is the first and dominant country where research is related to cyberloafing behavior, although most of the Asia Pacific countries such as China, Turkey, Malaysia and Indonesia, where the country where this research originates, also do the same thing.

Documents by country or territory

Compare the document counts for up to 15 countries/territories.

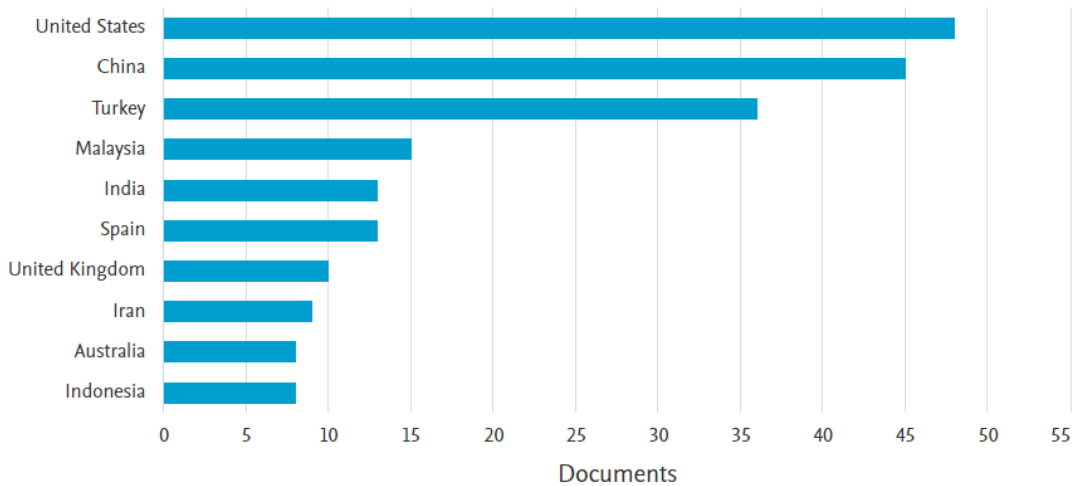


Fig.3: Numbers of papers by region

A further analysis is co-authorship analysis. The results found contained 5 clusters analyzed by several authors. There are 5 clusters differentiated by color. The red cluster shows that cyberloafing behavior occurs because of the presence of a smartphone and a person's lack of ability to control it. Articles with the yellow cluster explain the relationship between cyberloafing behavior and a person's personal traits and knowledge management. Meanwhile, for the blue cluster, research revolves around cyberloafing behavior with emotional exhaustion and the role of organizational behavior. Research with a green cluster focuses on cyberloafing behavior with work itself, and the last research with a purple cluster focuses on cyberloafing behavior, satisfaction with work, and motivation.

Co-authorship Analysis Results

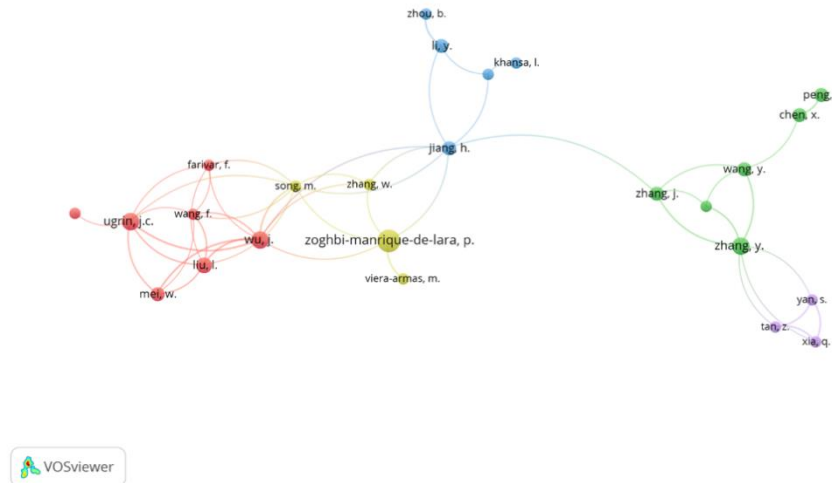


Fig.4: Co-Authorship based on Author Name

In Figure 5, the results of research using VosViewer software contain various keywords related to cyberloafing behavior and information technology. There are clusters related to those presented in Table 2, resulting in 11 clusters from the 208 selected articles. The 11 clusters that were formed show the closeness and interconnectedness of themes related to cyberloafing with other themes that have been widely studied by other researchers. This can provide opportunities for future researchers to collaborate on themes that have not been done by many other researchers.

Co-occurrence Analysis Results

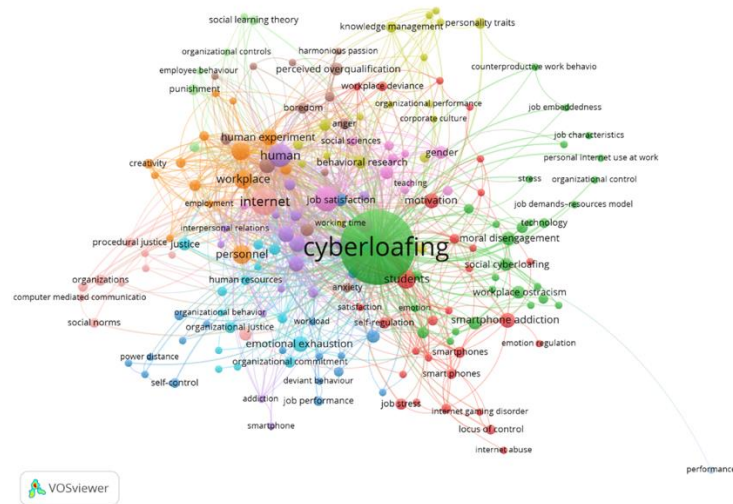


Fig.5: Co-occurrence network visualization based on keywords

In Figure 6 below, the most talked about or talked about topics are presented, divided into years, related to cyberloafing behavior. It can be seen that the trend regarding team cyberloafing is growing from year to year. This explains the many themes formed in the 11 clusters, providing an overview of research developments and providing opportunities for other researchers to collaborate on topics that have not been widely researched by other researchers.

Citation Analysis Results

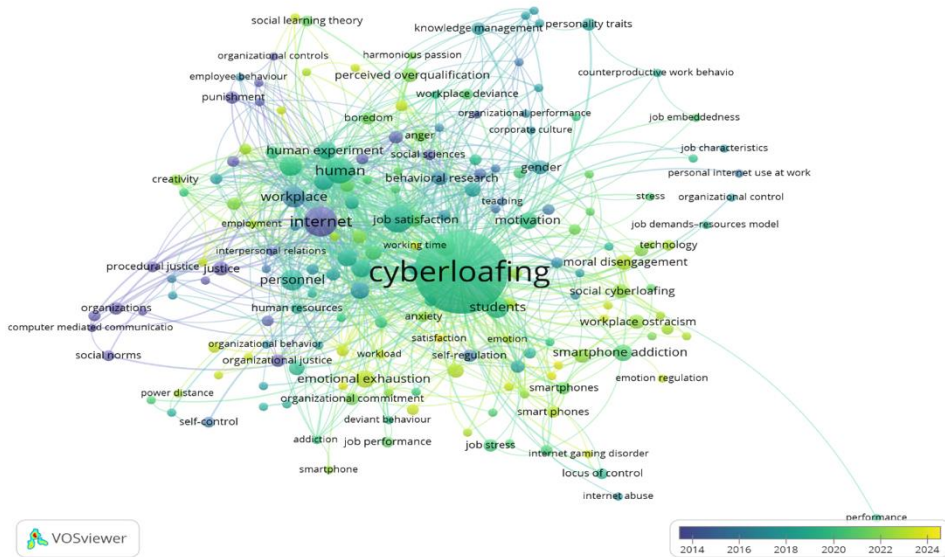


Fig.6: Co-occurrence network visualization based on years

Table 2. Cluster Information Based on Keywords

Cluster	Dominant Keyword
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Cluster 1 (Red lines)	Cognitive absorption, computer abuse, information technology, computer aided, cyberloafing behavior, depression, deregulation, education computing, emotion computing, higher education, information use, internet use, job stress, learning environments, locus of control, motivation, organizational identification, satisfaction, self-regulation, work engagement, workplace deviance
Cluster 2 (Green lines)	Abusive supervision, behavior intention, conscientiousness, cyberloafing, emotion, fatigue, job characteristics, job embeddedness, moral disengagement, job demand, organizational control, psychological contract, social cognitive theory, social exchange theory, stress, workplace loneliness, work ostracism
Cluster 3 (Blue lines)	Conservation of resource, deviant behavior, job performance, job satisfaction, power distance, responsible leadership, role ambiguity, self-efficacy, self-control, task performance, workload, it adoption
Cluster 4 (Yellow lines)	Burnout, corporate culture, cyberdeviancy, cyberloafing antecedents, human computer interaction, knowledge management, knowledge workers, mindfulness, organizational performance, personal internet use, personal web usage, personality traits, working hours, working time, workplace boredom
Cluster 5 (Purple lines)	Addiction, humans, interpersonal relations, perception, productivity, psychology
Cluster 6 (Blue lines)	emotional exhaustion, employee behavior, ethics, mental health, organizational commitment, organizational justice, personality,
Cluster 7 (Orange lines)	Addiction, interpersonal relations, perception, productivity, social media, social networking, utilization, young adults
Cluster 8 (Brown lines)	Aggression, anger, anxiety, boredom, coping, counterproductive work, harmonious passion, human resource management, leadership, learning, meaningful work
Cluster 9 (Pink lines)	Attitudes, internet use, cyberlacking, education, social sciences, media in education
Cluster 10 (light orange lines)	communication, conflict, internet, organizations, procedural justice, social norms, telecommunication network, world wide web
Cluster 11 (light green lines)	employee behavior, organizational controls, organizational culture, punishment, social learning theory
Cluster 12 (light blue lines)	performance

source: own

5. Discussion

The results of this research underline the need for further research that can be carried out in the future and can provide implications and direction for practical implications both from an individual and organizational perspective. Based on the findings of this bibliometric analysis, the number of researchers who review, discuss, and study cyberloafing behavior has increased from 2002 to 2023. Meanwhile, 2024 is still the current year and it is believed that this number will continue to increase. Increasing interest in cyberloafing can be caused by various factors, including the existence of sophisticated technology that supports cyberloafing behavior. (Sheikh et al., 2015b, 2015a). Besides that, with the ease of getting devices at affordable prices, the cheap prices offered by internet connection providers make it easier for people to do cyberloafing (Batabyal & Bhal, 2020). Cyberloafing behavior has become a pros and cons among today's society. It is unfortunate that this not only harms the organization but can also damage the rules and culture of an organization (Elrehail et al., 2021; Karimi Mazidi et al., 2020). Meanwhile, for employees or individuals, this behavior has a positive impact as a stress reliever at work, stretching mental and emotional fatigue and as a moment of entertainment to fill free time.

Cyberloafing behavior is not only carried out by employees but in several cases in schools and universities (Coskun & Gokcearslan, 2019; Wagner et al., 2012). Apart from that, most of the research focuses on the Asia Pacific region, although it does not rule out the possibility that cyberloafing behavior occurs in all parts of the world. The co-occurrence analysis results revealed a cluster focused on cyberloafing behavior, work satisfaction, and motivation, which contradicts some previous research suggesting a negative relationship between cyberloafing and job satisfaction findings are important for practitioners and academics. Increasing these themes will benefit the academy in the future in researching cyberloafing behavior. There are many interesting topics and there are still many gaps for further research. The cluster 2 table can be used as a reference or additional insight into the possibility of conducting similar research and can combine and collaborate on several keywords that have not been discussed. Academics and researchers have noticed that there has been little research that concentrates on interdisciplinary studies of cyberloafing behavior over the years. In line with the findings of this research, there is research that highlights the importance of controlling oneself to carry out cyberloafing in the work environment (Durak, 2020; Metin-orta, 2022; Metin et al., 2023; Wagner et al., 2021)

6. Conclusions and Recommendation

This systematic literature review provides a comprehensive understanding of the evolving research landscape surrounding cyberloafing behavior and its relationship with information technology in the workplace. The research that has been carried out uses bibliometric analysis of 208 selected articles that have carried out the filtering stage and focus on cyberloafing behavior. Researchers present insights into research trends in the realm of cyberloafing behavior. The trend of increasing research focus occurred from 2002 to 2023, while in 2024 it will still be small and will certainly continue to increase. The majority of countries that are concerned with choosing this research topic revolve around the Asia Pacific, but the United States dominates research on this research topic. From this point of view, it can also enrich questions and keywords, revealing various scientific themes of cyberloafing behavior. Finally, the evolution of research themes can be investigated using other scientific techniques such as Web of Science (WOS) or other databases. Furthermore, the findings of this review highlight the need for interdisciplinary and cross-cultural studies to explore the nuances of cyberloafing behavior and its potential impacts across diverse organizational and cultural contexts. Developing and testing theoretical frameworks that integrate cyberloafing, information technology, and relevant contextual factors will be crucial for informing effective management strategies in the digital workplace. Future research should focus on developing and testing theoretical frameworks that integrate cyberloafing, information technology, and relevant contextual factors to inform effective strategies for managing and mitigating this behavior in modern workplaces

Several limitations occur in this research. first and foremost, the complexity of cyberloafing behavior in multidisciplinary research, is a limitation, especially in the selection of data sets. secondly, by limiting it to the Scopus database retrieval method, this research is also limited by publications from other sources. Many publications related to cyberloafing behavior have been published outside the Scopus retrieval system. In addition to database constraints, the dataset is compiled using common key phrases found only in the title or abstract. Constraints of this type are widespread in bibliometric studies, therefore there is a need to focus on them so that the findings can be interpreted and generalized.

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