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INTELLECTUAL STRUCTURE OF CYBERLOAFING STUDIES IN WORKPLACE SETTING

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ABSTRACT

This study offers a comprehensive bibliometric examination of cyberloafing research within the social sciences, aiming to map the intellectual, conceptual, and social structure of the field. Using data retrieved from the Web of Science database, a total of 315 peer-reviewed articles published between 2001 and 2025 were analyzed through the bibliometrix and Biblioshiny packages in R. The analysis was conducted across seven dimensions, including sources, authors, documents, conceptual structure, intellectual structure, and collaboration networks. The findings reveal a rapidly expanding research domain, characterized by a high annual growth rate, and increasing citation impact, particularly after 2020. Scholarly contributions are geographically concentrated, with China, the United States, and India emerging as the most influential countries in terms of productivity and collaboration. Co-occurrence and thematic analyses identify three dominant research clusters: cyberloafing's antecedents, consequences, and well-being; workplace internet use and organizational impact; and resources, engagement, and performance. The thematic map highlights motor themes such as internet use, leadership, and emotional exhaustion as the intellectual core of the field, while niche themes (e.g., deterrence theory and psychological detachment) reflect theoretically mature but specialized research lines. Emerging themes, including meaningful work, justice, gamification, personality, and remote work, indicate developing research fronts with growing scholarly attention. By systematically synthesizing the evolution, key contributors, and thematic orientations of cyberloafing research, this study advances a holistic understanding of the field and highlights underexplored areas that may inform future theoretical development and empirical inquiry. The findings also offer practical insights for organizations seeking to balance productivity concerns with the potential restorative and social functions of non-work-related internet use in contemporary work environments.

Keywords: Cyberloafing, Internet Use, Cyberslacking, Cyber Deviance, Bibliometric Analysis.

INTRODUCTION

Considering that there are 4.5 billion internet and 3.8 billion social media users in the world, almost 60% of the world's population is sharing something online and constantly. While life-changing digital connectivity reshapes social life and habits, it also brings some difficulties (Kemp, 2020). Cyberloafing, which refers to the use of the internet and social media for non-work purposes, is among the important challenges faced organizations as a result of the reflection of the digital world on business life (Ozkalp & Yildiz, 2018).

Cyberloafing has matured from a field that myopically addressed only the conceptual level to one that comprehensively considers the broader individual and organizational topics that face today's organizations (Karaboga & Karaboga, 2024). The growing research interest has enabled the researchers to investigate different aspects of this concept. The rising integration of technology, work, and social life has made it even more attractive to understand the importance of this topic. This emergent research field has been growing for 25 years and is progressing towards its third decade with a positive trend over the years. Parallel with the global trend, the concept of cyberloafing has received more appealing in the past five years and garnered emerging clusters of research in this research area.

Past research indicates that a few literature reviews such as meta-analysis and systematic reviews have been conducted by recent researchers. For instance, in a recent meta-analytic study Mercado et al. (2017)

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examined the growing literature on cyberloafing in order to gain insights into its nomological network with some related variables such as boredom, engagement, employee attitudes, self-control, big five personality traits, performance, and overall counterproductive workplace behaviors. Despite its robust analytic nature, caution should be exercised in generalizing the results of that study because the cyberloafing related research masses in the literature are in the process of formation. Similarly, a recent systematic review that examined the 69-paper tried to identify antecedents of cyberloafing such as personality and conditional variables that lead to the increase of cyberloafing (Weissenfeld et al., 2019). These reviews have identified different concepts which are covered within the emergent cyberloafing research literature. They give a summary of the literature by providing relatively straightforward analyses, tables, number of papers, and topic distribution. Each study has rendered different insight and contribution into the field, but additional attempts using robust bibliometric analyses can allow further contribution not previously fully grasped or evaluated. In light of these arguments, filling this gap represent the original contribution of this study to extant literature.

Bibliometric analysis has been used for clarifying the uncovered issues about the existing literature such as research trends, topics, leading journals, citation frequency (paper, author and journal), contents, collaborations of authors and countries, networks, and frequency of publications. Ellegaard & Wallin (2015) stated this method as "quantitative analysis of written publication". By operating this method, identifying the most productive and influential researchers in the field can enable researchers to capture new research topics and trends covered by these researchers (Fahimnia et al., 2015). This paper presents a comprehensive bibliometric evaluation of the field, focusing on cyberloafing concept, retrieving 401 published studies and filtering this pool to 315 articles. With the help of bibliometric analysis, we will provide answers to following research questions regarding cyberloafing:

RQ1. Which articles, journals, authors, institutions and countries are the most influential in cyberloafing research?

RQ2. How are cyberloafing articles clustered, and which research streams are likely to emerge in cyberloafing studies?

RQ3. Which research streams related to cyberloafing have received the most research interest?

RQ4. Which are the research gaps?

RQ5. What guidelines for future research can be derived that will open new avenues for researchers in cyberloafing studies?

LITERATURE REVIEW

Technology has a pivotal role in employee productivity. Internet usage and internet-related advancements in telecommunication and information technologies have increased this momentum in many ways, such as teleworking and online education platforms (Orucu & Yildiz, 2014). This incremental trend reached its top levels in the ongoing Covid-19 pandemic process that prevents people's face-to-face interaction. Despite technology and the internet playing a key facilitator role in the life and work environment, the possibility of misuse of the internet and technologies is also emerging as a new problem. According to the Ethics Resource Center (2012), 62% of employees report non-work-related internet use during working hours in the workplace. Consistent with this, Salary.com (2012) surveyed 3200 people in 2012 found that around 64% of the people report non-work-related internet usage every day during working hours. The same research also indicates that two-thirds of respondents reported wasting time at work, of which 29% notify up to 2 hours a week wasting time on the computer at work. Additionally, a research at the University of Nevada demonstrated that six out of 10 people report non-work-related websites during the working hours, such as Udemy (an online learning platform) and Facebook. Consequently, this type of technology misusage costs a business around 85 billion dollars for a year (Stokel-Wolker, 2020). Limiting cyberloafing activities due to these productivity losses is always a hot topic on the agenda. Coherently with this view, Saleh et al. (2018) stated that restricting internet services on social networking and non-work-related web browsing could make employees more productive.

Given the aforementioned dark sides of cyberloafing, defined as "the act of employees using their companies' internet access for personal purposes during work hours" (Lim, 2002, p. 675), organizations and researchers have drawn their attention to cyberloafing behaviors. A recent meta-analysis on 54 cyberloafing-related studies indicated that boredom, engagement, employees' attitudes, and self-control

exhibit strong relationships with cyberloafing (Mercado et al., 2017). Also, they report that although cyberloafing is strongly associated with counterproductive workplace behaviors, its relationship with other performance dimensions is non-significant. While Askew (2012) stated positive and non-significant relationship between task performance and cyberloafing, Luksyte (2011) determined a negative relationship between cyberloafing and creative performance. Supporting this notion, recent researchers found positive relationships among cyberloafing, withdrawal behaviors (Askew, 2012), and anger toward the organization (Zhang et al., 2020). Past researchers also specified that employees' organizational justice perception is one of the antecedents of cyberloafing (Betts et al., 2014; Oosthuizen et al., 2018; Zoghbi-Manrique-de-Lara, 2007).

As understood from the above-mentioned studies, cyberloafing could be seen as a kind of employees' reaction to unfavorable conditions in the work environment, and there is a need for more studies to understand and manage these behaviors effectively. Despite increasing number of individual studies in the literature on cyberloafing, there is need to much empirical studies. These studies will allow researchers to make more robust and generalizable review articles to comprehend the general nature of cyberloafing. In this respect, bibliometric studies are useful papers for the explore and understood current scientific orientations towards a specific concept. Bibliometric studies also direct research focus to more original research papers by addressing research gaps in the existing literature. The current research tried to answer these questions by using bibliometric analysis suggested by Aria & Cuccurullo (2017), and Nasir et al. (2020), as seen in Figure 1.

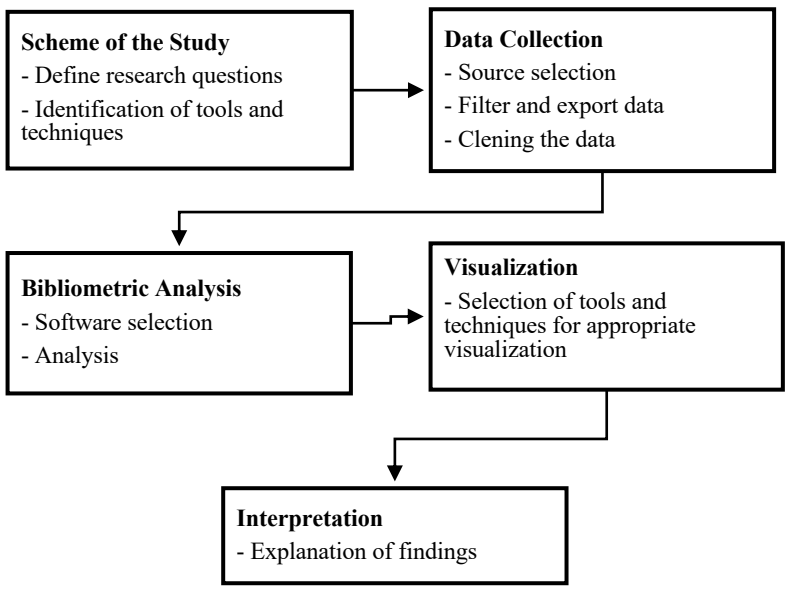


Figure 1. The procedure of bibliometric analysis

METHODS

Data Source and Search Strategy

The literature search was conducted by using the English language in the ISI Web of Science (WoS) database. The publications' time was from 2002 to Dec 2025. To retrieve publications on the subject of cyberloafing, the search was conducted in the topic field which runs the search in [titles, author keywords, keyword plus, and abstract] and using the words ("cyberloafing" OR "cyberslacking" OR "cyber loafing" OR "cyber slacking" OR "personal internet use" OR "personal internet usage" OR "non-work internet use" OR "non-work internet usage" OR "cyberdeviance" OR "cyber deviance" OR "cyber-deviance") AND ("work*" OR "workplace" OR "employee*") NOT ("classroom" OR "student*") NOT Publication Years: 2026.

Eligible Criteria

Original research articles and reviews was included to study. The exclusion criteria were as follows: (1) articles published on other databases; (2) translated versions of articles; (3) comments, editorials, and letters; (4) book, book chapters, and abstracts; and (5) eliminating duplicate literature. Accordingly, the present study initially identified 328 documents. Subsequently, 9 records were excluded, including book chapters, editorial materials, and meeting abstracts. In addition, only publications written in English were retained, leading to the exclusion of 4 studies published in Turkish, Portuguese, and Polish. Following the application of these inclusion and exclusion criteria, the final dataset comprised 315 research articles, review articles, and proceeding papers for analysis . The detailed search and screening procedure is illustrated in Figure 1.

Study Selection and Data Management

Data extraction and selection process performed by two researchers independently. The studies were retrieved from the database and processed in the excel sheet. At the first step, the missing information was detected and filled according to the original copies. We also check the digital object identifier numbers of the papers to prevent the name-related errors. Lastly, we transformed the name of publication's cities to country names.

Data Analysis

We conducted this bibliometric analysis though *R* version 3.6.0+ (R Core Team, 2020) and bibliometrix package of R Studio version 2025.09.2+418 (Aria & Curcurullo, 2017). The publication characteristics such as title, keywords, abstracts, author names, countries, institutions, doi numbers, WOS numbers, and reference lists were retrieved from ISI Web of Science database. All characteristics were tabulated in an excel sheet. We utilized the *R* software to analyze the most productive authors, countries, references, journals, research institutions, and keywords. The analyses were conducted at seven stages: dataset, sources, authors, documents, conceptual structure, intellectual structure, and social structure.

RESULTS

Descriptive Analysis

As seen in Table 1, the articles published in the period of 2001-2025, mostly consists of multi-authored articles. While the annual percentage growth rate is 19.15%, the average citation per publication is 25.75. The pronounced growth rate provides strong evidence that this research area is either emergent or undergoing rapid expansion, marked by escalating scholarly interest and a steady rise in publication activity over the period examined. Moreover, the average document age of 5.68 years, when considered alongside this growth trajectory, indicates that the field is both contemporary and actively evolving. The total number of the authors of 315 articles is 809. The collaboration index was calculated as 3.23 for this study. This strong emphasis on multiple authorship points to a field of research where knowledge production is often a collective effort (Elango & Rajendran, 2012; Koseoglu, 2016). A substantial share of the publications involves international collaboration, representing 27.3% of all co-authored works. This level of cross-border cooperation underscores the global scope of the field and reflects the strong interconnectedness of the scholarly networks engaged in its development.

Table 1. Descriptive analysis: Main information regarding the collection.

Description	Statistics
Document type: *Articles* Document type: *Review article* Document type: *Proceeding paper*	272 15 28
Period	2001-2025
Annual scientific production growth rate	19.15%
Average citations per publication Document average age Documents	25.75 5.68 315
Authors	809
Sources	183
Authors of single-authored publications	27
Single-authored docs	33 (%10.5)
Co-authors per doc	3.23
International co-authorships %	27.3

In conclusion, the bibliographic dataset derived from the Web of Science (WoS) indicates a rapidly expanding and highly collaborative research area. The sustained increase in publication output, the large and diverse pool of contributing authors, and the prominence of co-authorship networks—particularly those involving international collaboration—collectively underscore the collaborative nature of the field. Despite the relatively recent emergence of many of the publications, the observed high average citation rates suggest a notable level of scholarly influence. Taken together, these core bibliometric indicators portray a dynamic and increasingly impactful research domain, providing a robust foundation for more advanced bibliometric analyses aimed at uncovering its intellectual structure, thematic development, and leading contributors.

Figure 2 depicts a marked evolution in scholarly attention over the past two decades. The number of publications remained modest prior to 2013, reflecting limited early exploration of the phenomenon. From approximately 2013 onward, output exhibited a gradual rise, followed by a pronounced surge after 2020, reaching 49 publications per year in 2025. Similarly, citation counts were negligible in the initial years but began to increase around 2015, demonstrating rapid exponential growth thereafter and culminating in a value of 1547 in 2025. The concurrent rise in publication volume and citation intensity suggests that the field has progressed from an emergent stage toward a phase of increased maturity and scholarly consolidation.

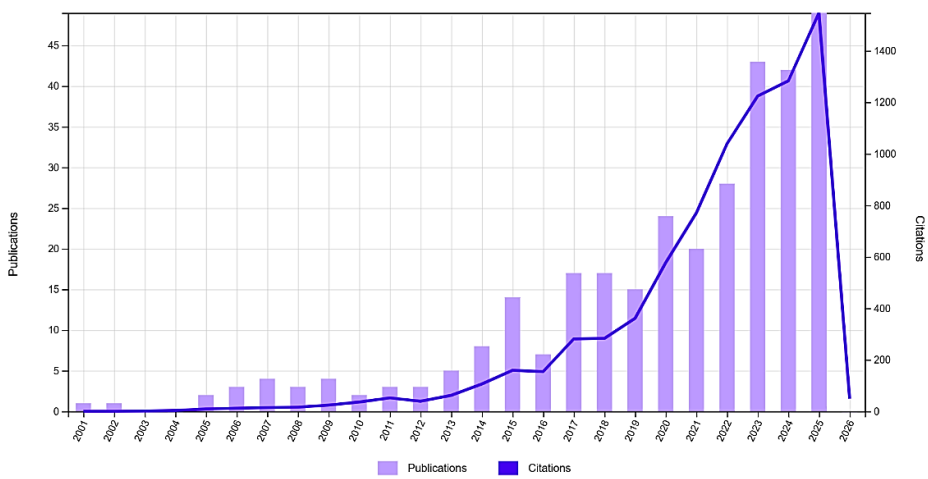


Figure 2. Times Cited and Publications Over Time

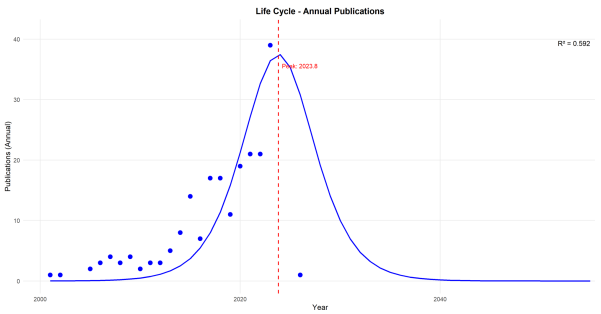
Life Cycle of Scientific Production

Based on the life-cycle plots and logistic model results, the publication trajectory of this research domain exhibits the typical dynamics of an S-shaped growth process, yet with important nuances that complicate a straightforward maturity interpretation. The annual output curve shows a prolonged period of low productivity in the early years, followed by a clear acceleration after the mid-2010s. This pattern is mirrored

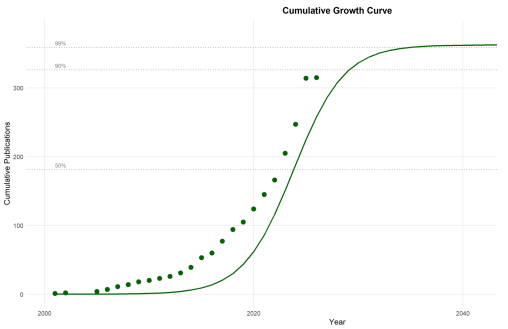
in the cumulative publications curve, which transitions from a flat trajectory into a steep rise, signaling a phase of rapid knowledge accumulation.

The logistic model identifies an inflection point around 2023–2024, suggesting that the maximum growth rate of cumulative publications and the peak of annual output occur at this time. However, the moderate explanatory power of the model ($R^2 \approx 0.59$) and the relatively high prediction error indicate that the observed data do not fully conform to a smooth logistic pattern. Most notably, the sharp increase in publications in 2023 substantially exceeds the model's estimated peak, implying that recent scholarly activity is more intense than expected. This deviation suggests that the field may currently be experiencing renewed momentum, potentially driven by new theoretical perspectives, methodological advances, or heightened practical relevance.

a. Life cycle – annual production



b. Cumulative growth curve



The estimated carrying capacity of approximately 360 publications points to a relatively bounded research area when interpreted strictly within the model. Nevertheless, the recent surge in output raises questions about whether this ceiling is underestimated or whether the field is entering a new developmental cycle that is not adequately captured by a single logistic curve. Overall, while the growth analysis signals a transition toward consolidation, the latest evidence highlights ongoing dynamism, indicating that the field may still be evolving rather than approaching definitive saturation.

Authors and Journals

To examine the author productivity of the articles, the Lotka's law was performed. This indicator assesses the author contribution in a given field. Lotka's law refers that "… the number (of authors) making n contribution is about $1/n^2$ of those making one; and the proportion of all contributors, that make a single contribution, is about 60%". In other words, "out of all the authors in a given field, 60% will have just one publication, and 15% will have two publications [$(1/2)^2 \times 60$], 7% authors will have three publications [$(1/3)^2 \times 60$], and so on" (Gokceoglu & Sezer, 2009; Mehta, 2005). For this study, 690 authors have one publication (85.3%), 74 authors having two publications is 9.1%. Of all authors, 3.3% (27 authors) have three contributions. It can be said that the author distribution ratios obtained with small deviations are consistent with Lotka's law (see Figure 3).

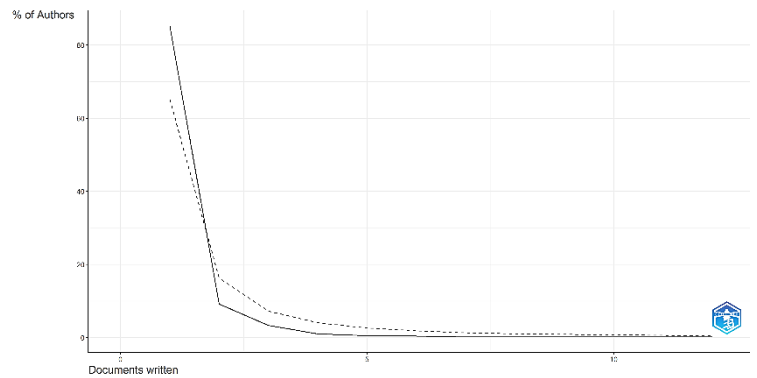


Figure 3. Author productivity thorough Lotka's law

The top 10 authors were presented in Table 2. The contribution of these authors constitutes 65 (21%) of the papers. With 12 papers (4%) Zoghbi-Manrique-De-Lara P. was found as the most productive author followed by Kaoy K. Y. (8 papers, 3%), Lim, V. K.G (7 papers, 2%), Jiang, H. (6 papers, 2%), and Zhang, J. (6 papers, 2%). The top 10 English journals' proportion was found as 27% (85 papers), of which, *Computers in Human Behavior* was the highest (17 papers, 5%), followed by *Internet Research* (15 papers, 5%) and *Behaviour & Information Technology* (10 papers, 3%).

Table 2. The top 10 authors and journals of cyberloafing research [n (%)].

Rank	Authors	N	Articles fractionalized	Journals	N (315, %)
1	Zoghbi-Manrique-De-Lara P.	12	7,31	Computers in Human Behavior	17 (5%)
2	Koay K. Y.	8	3,83	Internet Research	15 (5%)
3	Lim V. K.	7	3,92	Behaviour & Information Technology	10 (3%)
4	Jiang H.	6	2,45	Current Psychology	9 (3%)
5	Zhang J.	6	1,53	Information & Management	7 (2%)
6	Zhang Y.	6	1,65	International Journal of Human-Computer Interaction	7 (2%)
7	He Y.	5	1,04	Behavioral Sciences	5 (2%)
8	Wang J.	5	1,32	Frontiers in Psychology	5 (2%)
9	Wang Y.	5	1,09	Journal of Business Ethics	5 (2%)
10	Wu J.	5	0,87	Journal of Managerial Psychology	5 (2%)
	Total	65	25,01	Total	85 (27%)

Some indicators are mostly used in academia to evaluate scientific performance and impact, such as H-index, G-index, and total citation score. Although each indicator evaluates different parameters, the combined use of these indicators is strongly recommended (Van Raan, 2006). Since H-index, developed by Hirsch (2005), counts quantity and impact simultaneously with a single indicator, it is the most popularly used one (Costas & Bordons, 2008). On the other side, the G-index is referring to "the highest rank such that the top g papers have, together, at least g2 citations. This also means that the top g + 1 have less than (g + 1)2 papers" (Egghe, 2006). In other words, G-index is more optimistic than H-index. According to Costas and Bordon's (2008) comparative study, G-index is more sensitive than H-index when assessing a scientist. G-index is misrepresentative for a scientist's average performance evaluation compared to the H-index, because it is responsive to a highly cited paper. However, H-index is insensitive to a highly cited paper and represent the more objective performance of a selective scientist, "whose citation pattern is more homogeneous and holds a higher rate of Highly Cited Papers than A" (Costas & Baron, 2008, p. 283).

As seen in Table 3, Zoghbi-Manrique-De-Lara P. ranks first, reflecting a strong and sustained scholarly influence, as evidenced by the highest h-index and a substantial total citation count, accumulated over a long publication period. Lim V. K. G. stands out with the highest total citations despite a moderate h-index, suggesting that a smaller body of work has achieved exceptional citation impact. Several mid-ranked authors (e.g., Koay K. Y., Pindek S., and Wu J.) demonstrate balanced profiles, combining moderate productivity with steady citation performance, indicative of consistent contributions to the field. In contrast, authors with more recent publication start years, such as He Y., Jiang H., and Agoyi M., exhibit relatively high m-index values, signalling rapid impact within a short academic timeframe. Overall, these findings suggest that the field is shaped both by established authors with enduring influence and by emerging scholars who are gaining visibility at an accelerated pace, highlighting a dynamic and evolving research landscape. (Priem et al., 2022; Aria et al., 2023; Aria et al., 2024).

Table 3. The top 10 authors and journals of cyberloafing research in English [n (%)].

Rank	Author	H_index	G_index	M_index	TC	NP	PY_Start
1	Zoghbi-Manrique-De-Lara P.	8	12	0,38	246	12	2006
2	Lim V. K. G.	6	7	0,24	1272	7	2002
3	He Y.	5	5	0,83	112	5	2021
4	Jiang H.	5	6	0,71	72	6	2020
5	Koay K. Y.	5	8	0,50	340	8	2017
6	Luqman A.	4	4	0,57	145	4	2020
7	Pindek S.	4	4	0,44	298	4	2018
8	Wu J.	4	5	0,57	156	5	2020
9	Agoyi M.	3	3	1,00	9	3	2024
10	Ahmad Z.	3	3	0,17	31	3	2009

Notes: TC: Total citation; NP: Number of papers; PY_Start: Start of publication year.

The production trajectories of leading authors, consistent with the indicators reported in Table 3, are illustrated in Figure 4. The analysis reveals a clear temporal differentiation in scholarly contributions, with publication activity and citation impact intensifying notably after 2020, signaling a recent phase of expansion and consolidation within the field. Among established scholars, Lim V. K. G. stands out as a foundational and highly influential author whose publication record extends from 2002 to the present. Early seminal works appear to have shaped the intellectual foundations of the field, while more recent contributions—most notably a comprehensive review article published in 2024—exhibit heightened productivity and exceptional citation impact, underscoring Lim's continued leadership in directing contemporary research agendas. Koay K. Y. similarly demonstrates a stable and impactful publication trajectory from the mid-2010s onward, with several highly cited studies addressing key organizational antecedents of cyberloafing, reflecting sustained thematic relevance. Zoghbi-Manrique-De-Lara P. represents a long-standing and resilient presence in the literature, contributing steadily over more than two decades with moderate yet reliable academic influence. In contrast, a growing group of recent entrants, including Jiang H., He Y., and Wu J., display accelerated productivity and increasing annual citation intensity since 2020, indicating rapid integration into the core of the field and pointing to the emergence of new research directions.

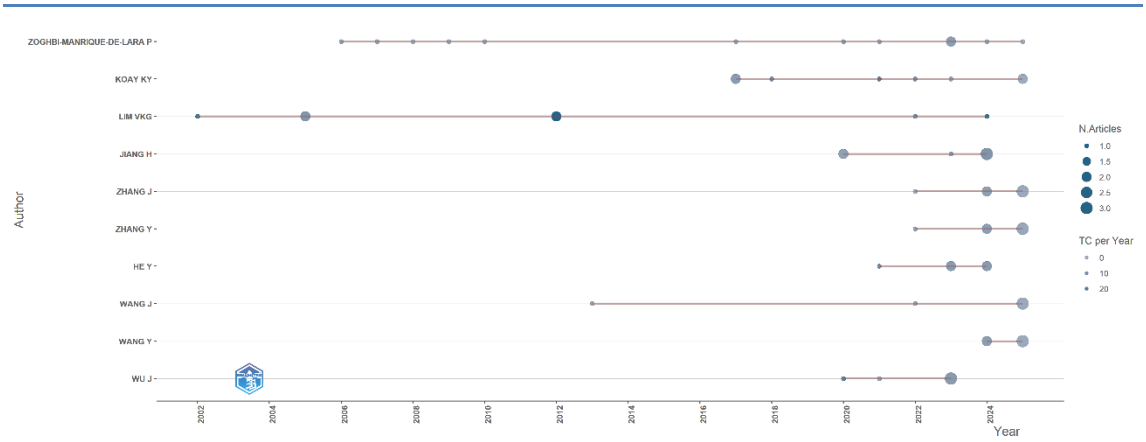


Figure 4. Top 10 authors' production over time

On the other hand, the most global cited 10 documents for cyberloafing research were presented in Table 4. Among these, Lim (2002), published in the Journal of Organizational Behavior, clearly emerges as the most influential work, recording the highest total global citations (TGC = 539) and total local citations (TLC = 225). Its strong TLC-to-TGC ratio indicates substantial recognition within the core literature, while a high citations-per-year value reflects sustained relevance over an extended period. This pattern suggests that the study constitutes a seminal contribution that continues to inform contemporary research. A

substantial proportion of highly cited articles are concentrated in Computers in Human Behavior, underscoring the journal's central role in advancing this research stream. Works by Vitak et al., Liberman et al., and Askew et al. exhibit balanced citation profiles, combining strong global visibility with considerable local influence. Their TLC-to-TGC ratios indicate that these studies are frequently referenced not only across disciplines but also within the specialized domain, pointing to their conceptual and empirical significance.

Table 4. Most global and local cited 10 documents for cyberloafing research

	Author(s)	Journal	TGC	TLC	TLC÷ TGC	TCPY	NTGC
1	Lim, 2002	Journal of Organizational Behavior	539	225	41,74	21,56	1,00
2	Vitak, et al., 2011	Computers in Human Behavior	214	88	41,12	13,38	1,48
3	Liberman et al., 2011	Computers in Human Behavior	142	87	61,27	8,88	0,98
4	Askew et al., 2014	Computers in Human Behavior	135	75	55,56	10,38	1,81
5	Andel et al., 2019	Computers in Human Behavior	111	69	62,16	13,88	3,90
6	Tandon et al., 2022	Internet Research	101	64	63,37	20,20	3,91
7	Mercado et al., 2017	Career Development International	100	62	62,00	10,00	3,42
8	Pindek et al., 2018	Computers in Human Behavior	101	60	59,41	11,22	2,84
9	Ugrin & Pearson, 2013	Computers in Human Behavior	103	59	57,28	7,36	2,12
10	Koay, 2018	Internet Research	110	59	53,64	12,22	3,10
		Total	1656	848	557,55	129,08	24,56

Notes: TGC: Total global citation; TLC: Total local citation; TCPY: Total citation per year; Normalized total global citation.

More recent contributions, such as Andel et al., Tandon et al., and Koay, demonstrate comparatively lower cumulative citations but notably higher citation intensity per year. This trend suggests rapid assimilation into the literature and growing scholarly attention, despite their shorter publication histories. In particular, the high TCPY values of these studies signal emerging impact and indicate that they are shaping current debates and research directions. Articles published in Internet Research and Career Development International further reflect the interdisciplinary expansion of the field, extending its influence beyond organizational behavior and psychology into information systems and career studies. Overall, the combined citation metrics reveal a literature characterized by a strong foundational core, complemented by a set of more recent high-velocity contributions that are actively redefining the contours of the field.

Figure 5 illustrates the collaboration network among the authors. Association was used as the normalization method, while Louvain algorithm was selected as clustering algorithm. After the isolated nodes were removed, 12 cluster among the 42 authors were identified, which each color represents different cluster. The size of the labels and edges between the nodes demonstrates the level of collaboration of network. Collaboration is concentrated around a dominant core, while several smaller and weakly connected clusters indicate specialized and relatively independent research groups.

At the center of the network, Zoghbi-Manrique-De-Lara P. emerges as the primary collaborative hub, closely connected with Wu J. and Song M., forming the most cohesive and influential community. This core cluster exhibits limited but visible links to other groups, suggesting a partial diffusion of knowledge across the network. A second prominent cluster, centered on Zhang J., Zhang Y., Wang J., and Wang Y., demonstrates strong internal collaboration but relatively weak external connectivity, reflecting a focused research agenda. Several peripheral clusters, including those led by He Y. and Koay K. Y., as well as isolated dyads, highlight niche-oriented and emerging collaborations. Overall, the network structure

indicates that the field is shaped by a central collaborative core alongside multiple specialized groups, pointing to opportunities for stronger cross-cluster integration in future research.

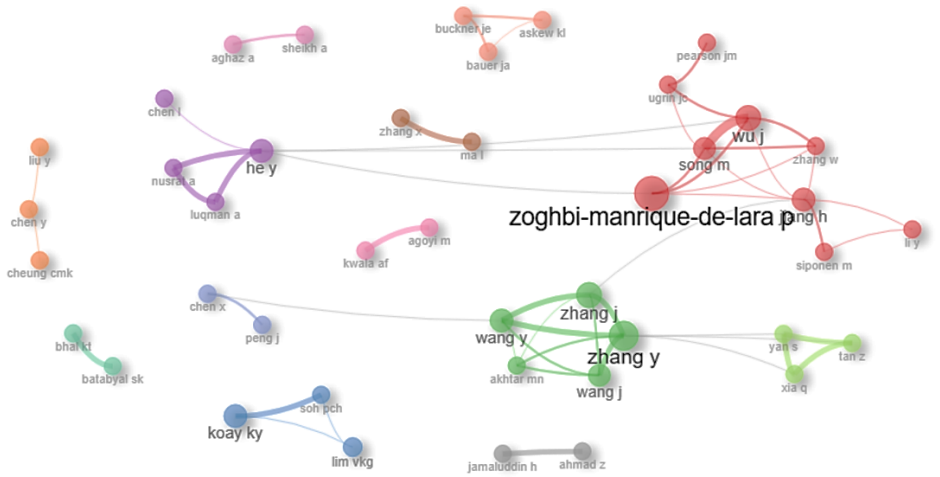


Figure 5. Author collaboration network

To examine the journal contribution to the current literature, the Bradford's law was used (Bradford, 1948, p. 86). With Bradford's law, it is possible to determine that whether only a few core sources will contain the most significant proportion of literature for any discipline or not. As seen in Figure 6, in the core zone of the plot, there are five journals namely Computers in Human Behavior (k = 17), Internet Research (k = 15), Behavior & Information Technology (k = 10), Current Psychology (k = 9), and Information & Management (k = 7).

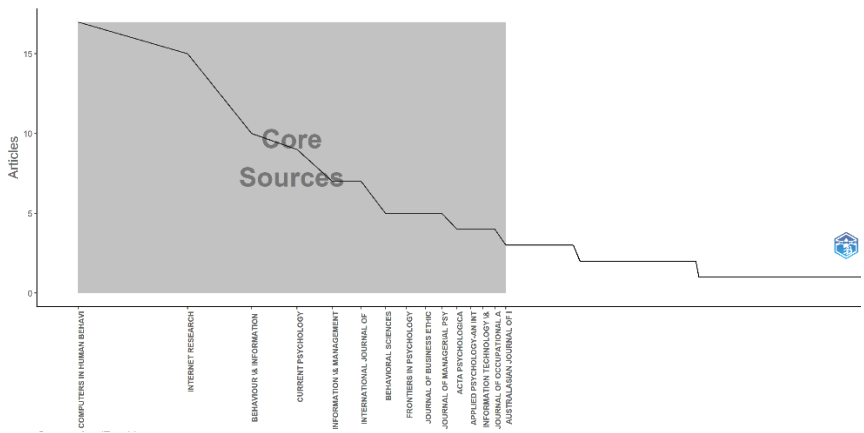


Figure 6. Bradford's law distribution

Although the largest proportion of the scientific contribution made by above mentioned five journals, the annual and cumulative growth rate is different. The figure illustrates the cumulative publication trajectories of selected journals over time. The results indicate that *Computers in Human Behavior* demonstrates a relatively early and consistent growth pattern, maintaining a leading position throughout the period examined. In contrast, *Internet Research* exhibits a noticeable acceleration in publication output, particularly around 2019-2020. *Current Psychology, Behaviour & Information Technology, and International Journal of Human-Computer Interaction* display a later onset of contributions, followed by a more pronounced increase in recent years (see Figure 7). Overall, the trend suggests that the focal research

theme has attracted progressively greater scholarly attention across multiple disciplinary outlets, with a marked expansion in visibility in the more recent period.

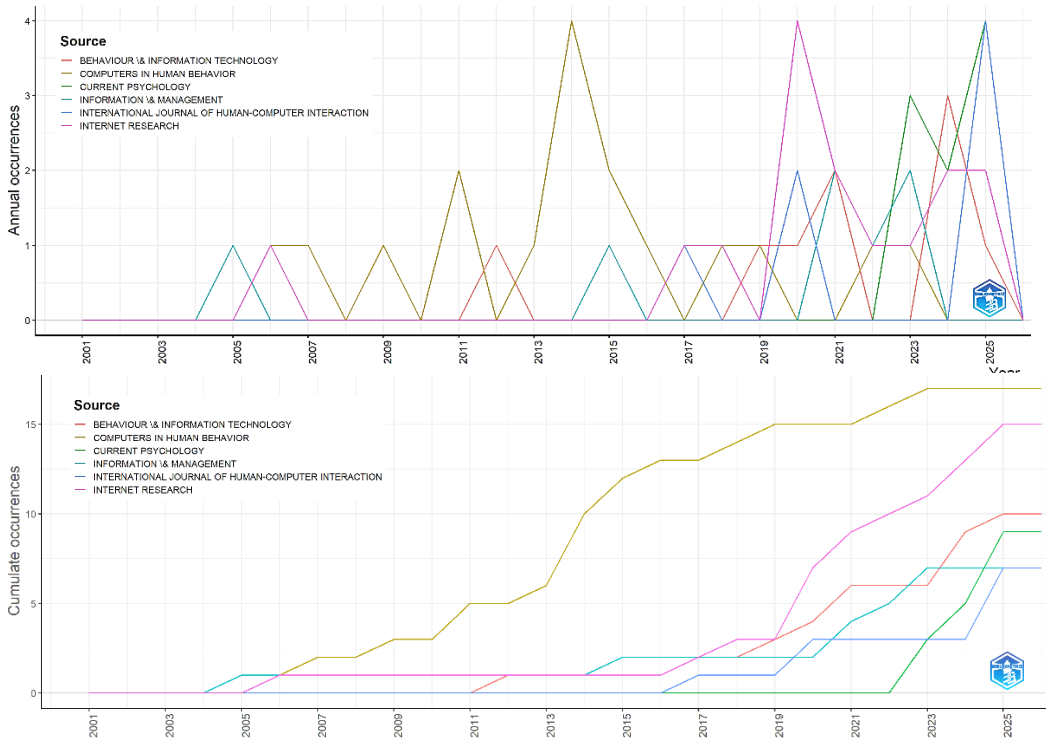


Figure 7. Kümülatife and annual growth rate of the sources

Countries and Institutions

Table 5. The top 10 countries and institutions that contributed to publications of cyberloafing

Country	N (%)	Country	TC	AAC	Institution	N (%)
China	286 (28)	USA	2172	41,00	Univ Sci And Technol China	19 (2)
USA	198 (20)	China	1356	16,30	Univ Las Palmas Gran Canaria	18 (2)
India	65 (6)	Singapore	1215	243,00	Natl Univ Singapore	15 (1)
Malaysia	49 (5)	Malaysia	389	20,50	Anhui Univ Technol	11 (1)
UK	41 (4)	Iran	295	24,60	Sunway Univ	11 (1)
Pakistan	38 (4)	Australia	256	36,60	Cent China Normal Univ	10 (1)
Iran	30 (3)	Norway	227	113,50	Cyprus Int Univ	10 (1)
Spain	28 (3)	Spain	227	20,60	Ferdowsi Univ Mashhad	10 (1)
Turkey	25 (2)	Germany	223	37,20	Guangdong Univ Foreign Studies	10 (1)
Australia	24 (2)	Canada	214	53,50	Pamplin Coll Business	10 (1)
Total	784 (77)	Total	6574 (82)	606,80 (63)	Total	124 (12)

Notes: TC: Total citations; AAC: Average article citations.

A total of 315 published papers was conducted by 809 authors from 449 institutions and 51 countries, including China (286÷1014, 28%), the USA (198÷1014, 20%), India (65÷1014, 6%), Malaysia (49÷1014, 5%), and UK (41÷1014, 4%). On the other hand, when the corresponding author countries were examined, the findings demonstrated that China is the most productive country with 83 articles (26.3%), followed by the USA with 53 articles (16.8%), and India with 22 articles (7%). Most relevant institution is *University of Science and Technology of China* with 19 articles, followed by *Universidad de Las Palmas de Gran*

Canaria with 18 articles, *National University of Singapore* with 15 articles, and *Anhui University of Technology* and *Sunway University* with 11 articles (see Table 5).

As seen in Figure 8, the corresponding author country collaboration analysis reveals pronounced differences in both research productivity and international engagement. China emerges as the most prolific contributor, followed by the United States, India and Malaysia, together accounting for a substantial share of total corresponding-author publications. Despite their high output, these countries exhibit only moderate levels of international collaboration, as reflected in their MCP ratios, indicating a predominance of domestically driven research alongside meaningful but secondary cross-national cooperation. In contrast, several countries with lower publication volumes display a strong reliance on international collaboration. Pakistan, the United Kingdom, Israel, and Korea demonstrate particularly high MCP ratios, suggesting that international partnerships constitute a central component of their research strategies. Germany and Saudi Arabia also show comparatively strong collaborative orientations. Conversely, countries such as Canada and Cyprus record exclusively single-country publications within this dataset. Overall, the findings point to a clear structural divide: high-output countries tend to rely primarily on domestic research capacity, whereas countries with smaller publication volumes appear more globally integrated through collaboration. This pattern underscores the heterogeneous nature of international research engagement and highlights collaboration as a strategic mechanism for enhancing scholarly visibility and impact in less prolific research systems.

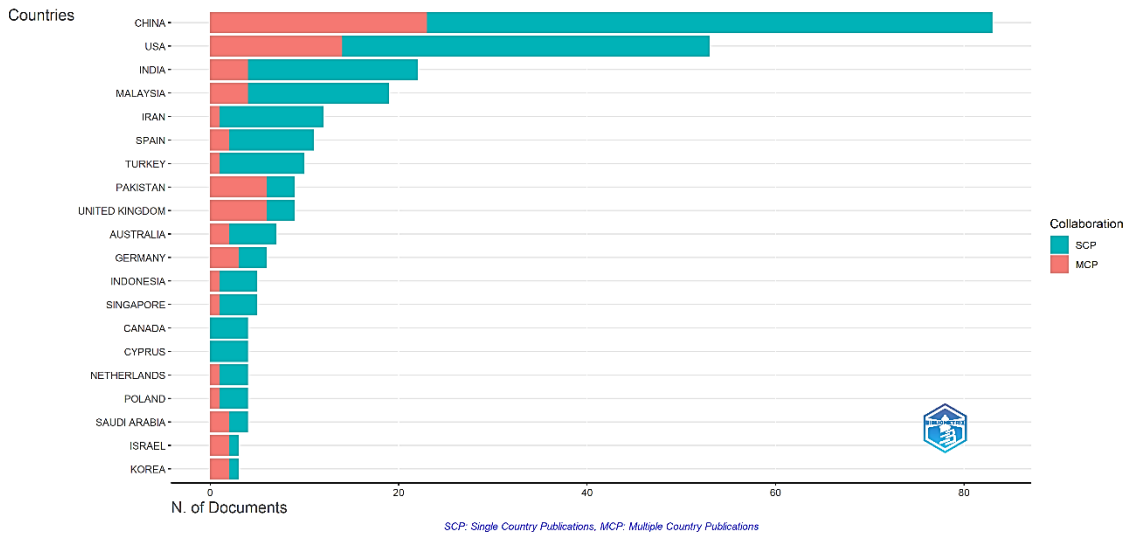


Figure 8. Most productive countries

Figure 9 presents the three-fold analysis of cyberloafing publication. The three-field plot demonstrates a tightly coupled relationship between research themes, countries, and institutional affiliations within the dataset. The keyword "cyberloafing" clearly dominates the intellectual landscape and is primarily driven by authors based in China and India, with additional contributions from the United Kingdom, Iran, and Malaysia. This thematic concentration is strongly supported by leading Chinese universities, which emerge as central institutional actors, alongside the National University of Singapore, reflecting both domestic strength and cross-national linkages. Other institutions contribute more selectively, often aligned with country-specific research streams such as cyberdeviance and cyberslacking. Overall, the visualization indicates that research on cyberloafing is globally diffused but institutionally anchored in East Asia, where national research capacity and prominent universities jointly shape the field's core agenda.

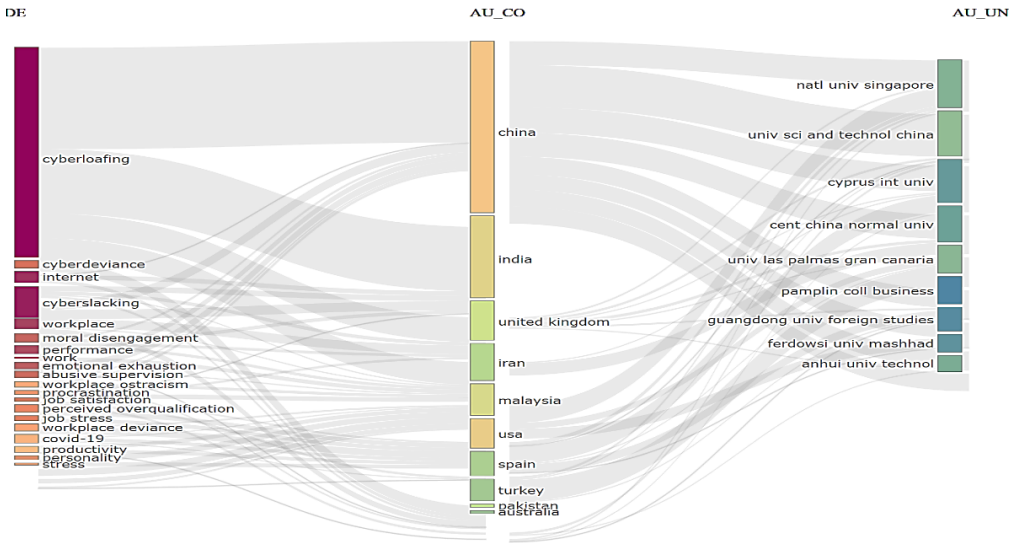


Figure 9. Three-fields plot of cyberloafing literature.

Social Network Analysis Among the Countries

The social network analysis specified that the collaboration order is as follows China-the USA (12), China-Pakistan (7), China-UK (7), the USA-Israel (6), the USA-Australia (4), the USA-India (4), UK-Spain (3), China-Australia (3), Malaysia-Pakistan (3), the USA-Germany (3), and the USA-UK (3). As seen in the Figure 10, the USA and China are the dominant global research powerhouses, indicated by their deep red color. Western Europe (particularly the UK and Germany) and Australia also represent significant hubs. The USA acts as a central node, with strong collaborations evident across the Atlantic (with the UK and Western Europe) and across the Pacific (with China and Australia). China also exhibits robust partnerships with the USA, Pakistan, Europe, and Australia. Significant transatlantic links and East-West connections are prominent.

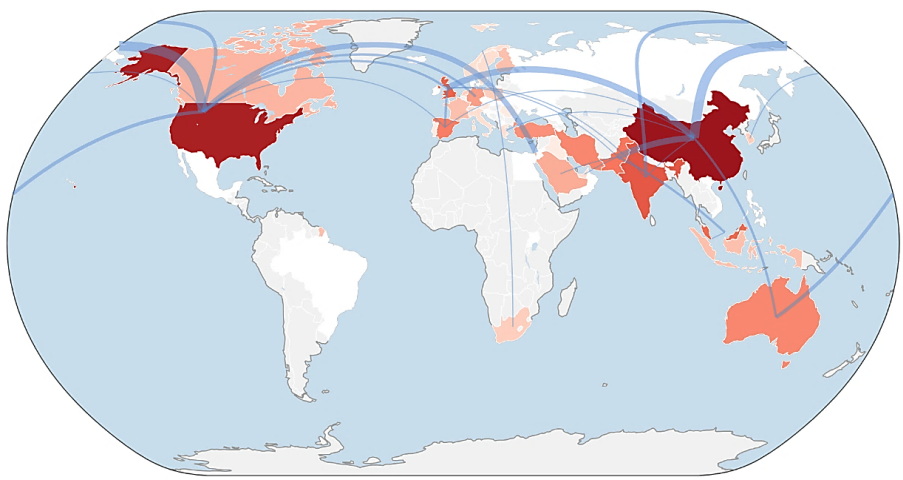


Figure 10. Country collaboration map

Co-Occurrence Network of Keywords

A co-occurrence map is creating using ‘all keywords network’ with 50 nodes. The network was generated using 'association' normalization and the Louvain clustering algorithm, which helps identify densely connected groups of keywords representing distinct research themes (Zhang et al., 2016). The keyword co-occurrence analysis depicts three interrelated thematic clusters clearly emerging (Figure 11). The first and most central cluster, *cyberloafing’s antecedents, consequences, and well-being*, concentrates on the core phenomenon of cyberloafing and examines its psychological and behavioral foundations. This cluster

predominantly addresses individual-level antecedents such as stress, abusive supervision, attitudes, and self-control, as well as outcomes including job performance, job satisfaction, emotional exhaustion, burnout, and employee well-being. The presence of mediating and moderating mechanisms, along with meta-analytical approaches, indicates a mature and theory-driven body of research aimed at explaining how and why cyberloafing emerges and affects employee outcomes. The second cluster, *workplace internet use and organizational impact*, emphasizes the broader organizational and managerial context in which cyberloafing occurs. Research within this cluster focuses on personal internet use, cyberslacking behaviors, employee perceptions, and organizational justice, highlighting the role of management practices and organizational policies. Studies in this stream often assess the impact of internet-related behaviors on organizational effectiveness, motivation, satisfaction, and behavioral norms, reflecting a more macro-level and governance-oriented perspective. The third cluster, *resources, engagement, and performance*, represents a complementary research stream grounded in positive organizational behavior and resource-based theories. This cluster explores how work engagement, leadership, personality traits, and technological resources relate to job performance and productive work behaviors. Although less directly focused on cyberloafing, this stream provides important contextual insights by identifying conditions that may buffer or counteract disengagement and counterproductive behaviors in the workplace. Overall, the strong interconnections among these clusters suggest that cyberloafing research is increasingly integrative, combining individual psychological mechanisms, organizational structures, and performance-related outcomes to offer a comprehensive understanding of the phenomenon.

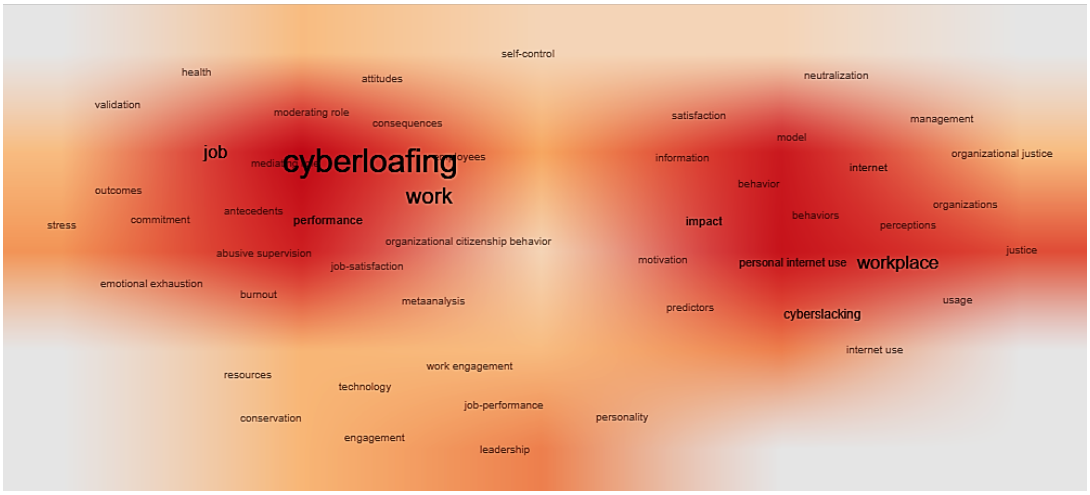


Figure 11. Density of co-occurrence network

Thematic Map

The thematic map consists of two dimensions (centrality and density) and four-zone namely niche themes (highly developed and isolated themes), emerging or declining themes, motor themes, and basic themes. Emerging or declining themes refer research topics with low density and low centrality. These themes include themes that can be developed better or excluded from the research area. Basic themes refer the area of low density and high centrality. Numerous researches have been conducted on these themes. Niche themes are located in the area of high density but lower centrality; these themes are well developed but also isolated. Lastly, motor themes are in the area with high density and centrality, which are developed and essential (Aria & Cuccurullo, 2017; Nasir et al., 2020). Accordingly, each bubble represents a network cluster. The sizes of the bubbles are proportional to the cluster with the higher occurrence value. The bubble name is the word belonging in the cluster with the higher occurrence value.

As seen in Figure 12, the strategic thematic map derived from author-defined keywords reveals a well-structured and evolving research field shaped by both mature and emerging lines of inquiry. The results indicate that themes related to internet use, leadership, punishment, emotional exhaustion, commitment, and coping are positioned as *motor themes*, reflecting both high centrality and high density. This positioning suggests that these topics are not only conceptually well-developed but also strongly interconnected with other themes, thereby forming the intellectual backbone of the literature. In contrast, *basic themes* such as cyberloafing, counterproductive work behavior, productivity, and technology exhibit high centrality but

comparatively low density. This pattern implies that these concepts function as fundamental reference points across the field and are frequently linked to multiple research streams; however, their internal theoretical structure remains relatively dispersed, indicating a need for greater conceptual integration and theory building.

Additionally, *niche themes*, including deterrence theory and the stress–creativity–psychological detachment cluster, display high internal cohesion but low external connectedness. This suggests that these themes are theoretically robust and well specified, yet largely confined to specialized research communities with limited diffusion into the broader literature. Finally, several *emerging themes,* such as meaningful work, affective events theory, justice, gamification, personality, and remote work, are located in the low centrality–low density quadrant, reflecting early-stage development and weaker linkages to established themes. Nevertheless, the recency of these topics indicates growing scholarly attention and signals their potential to evolve into more central research areas. Overall, the thematic map captures a dynamic knowledge structure characterized by mature core themes, foundational yet fragmented topics, specialized lines of inquiry, and promising emerging streams that offer substantial opportunities for future theoretical refinement and empirical investigation.

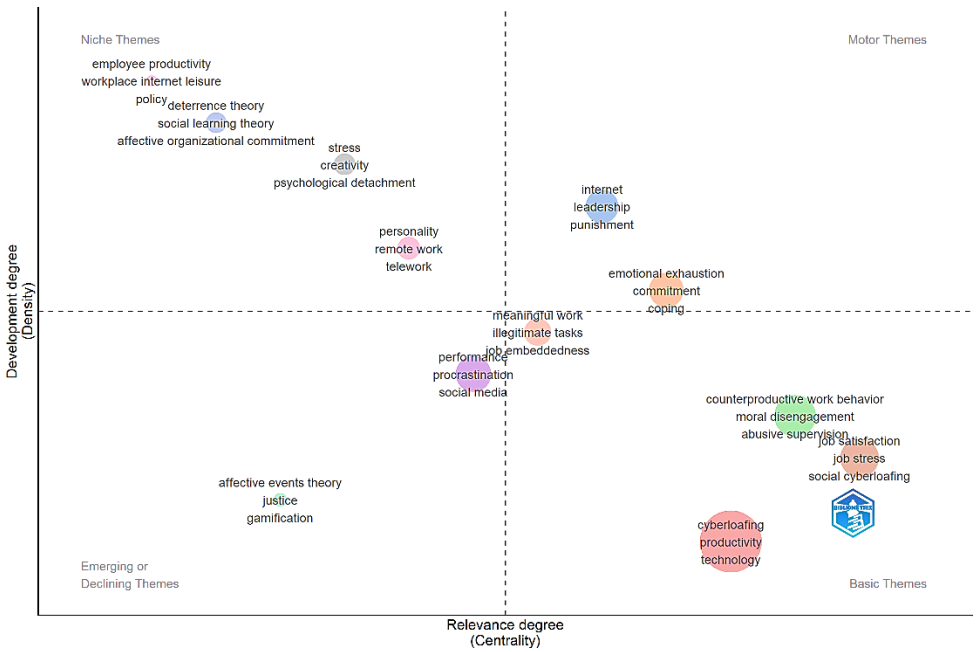


Figure 12. Thematic map

DISCUSSION

Modern organizations need to use computers, internet, smartphones and other tools effectively to meet business demands (Kemp, 2020). However, this requirement can often be violated as a use outside of work reasons. For this reason, it is also for practitioners and researchers critical to determine the antecedents and consequences of the use of information and communication technologies for non-work-related purposes (Yildiz & Yildiz, 2016). Furthermore, findings from current studies are still insufficient or offer a less holistic approach in the context of workplace cyberloafing behavior. Therefore, a bibliometric analysis of cyberloafing research literature production can identify the bibliometric characteristics of this area by asking the questions; what is already known, and which gaps are in the cyberloafing literature.

Bibliometric analysis indicated that cyberloafing related papers have been dramatically increased over the past twenty-five years. This increase is quite logical because of the fact that the amount of technology and computer in the work almost became an essential part of the work (Kemp, 2020). Since 1995, the usage and scope of the internet and new technologies has started to expand. Many new concepts and applications such as artificial intelligence, machine learning, deep learning, big data, internet of things, and cloud technologies have begun to be added to both the scope of the internet and the routines of business life

(Yamin, 2019). The positive trend in technological advancement most probably accompanied by the cyberloafing-related research literature production.

Past research focused on the socialization side of cyberloafing and drew attention to amount of time spent in nonwork-related internet usage (Hartijasti & Fathonah, 2015). They emphasized that "the internet has become daily working necessity, cyberloafing is likely to be a counterproductive activity if it is excessively done for more than four hours". From this point of view, cyberloafing can be seen, to a certain extent, as an expression of individuals' s socialization needs. Keklik et al. (2015) specified that cyberloafing contributed to organizational learning, that is, cyberloafers transfer the information they have learned to other organization members by socializing. Similarly, Yildiz & Yildiz (2025) determined that the recovery and developmental dimensions of cyberloafing would reduce safety behaviors and occupational incidents. The thematic maps also support this notion by including psychological detachment, creativity, learning, job satisfaction and motivation themes in the niche and emerging themes area.

China emerges as the most productive country in cyberloafing research, with both China and the USA acting as dominant global research hubs. The collaboration network reveals strong international partnerships, particularly involving China and the USA with a wide range of countries, indicating a geographically dispersed and highly interconnected research structure. The vast majority of these countries in the clusters are members of the G-20 (Group of 20). The G-20 countries' economic size constitutes 85% of the global economy. Economic growth/size is one of the key factors of advancements in information and telecommunication (IT) technologies. Recent research indicates a long-run positive relationship between economic growth and the development of the IT industry in G-20 countries (Nguyen et al., 2020; Pradhan et al., 2014). Taken together, the production of cyberloafing-related papers in most productive countries might be attributed to their level of economic growth.

The findings demonstrated that most cited document is published in the *Journal of Organizational Behavior* with the 1272-citation written by Lim (2002). Author Zoghbi-Manrique-De-Lara was found as the most productive Author with twelve publications. The largest proportion of the scientific production was published in the *Computers in Human Behaviors*. Since this journal is prestigious and dedicated to examining human interactions with computers, it is still the focus of researchers working on cyberloafing.

The keyword co-occurrence structure reveals that cyberloafing research has evolved into a multi-layered and conceptually interconnected field. The prominence of the cluster focusing on cyberloafing's antecedents, consequences, and well-being demonstrates a strong emphasis on individual-level psychological mechanisms and explanatory models, indicating that the literature has largely moved toward theory-driven inquiry rather than descriptive assessment. The parallel development of the workplace internet use and organizational impact cluster highlights a growing recognition that cyberloafing cannot be fully understood in isolation from organizational policies, managerial practices, and perceptions of justice, thereby extending the analysis from individual behavior to governance and control mechanisms. Moreover, the resources, engagement, and performance cluster underscores an emerging shift toward a more balanced perspective that integrates positive organizational behavior and resource-based explanations, emphasizing not only why cyberloafing occurs but also how supportive leadership, engagement, and resource availability may mitigate its negative effects. Taken together, the strong interconnections among these clusters suggest an increasing convergence of micro-level psychological processes, meso-level organizational contexts, and performance-related outcomes, pointing toward a more holistic and integrative theoretical framework for future cyberloafing research.

Furthermore, the strategic thematic map highlights a field that has reached a notable level of structural maturity while simultaneously exhibiting clear trajectories for future development. The dominance of motor themes related to internet use, leadership, punishment, emotional exhaustion, commitment, and coping underscores the consolidation of a strong conceptual core, indicating that research in this domain has moved beyond descriptive inquiry toward more theoretically integrated and interconnected explanations. At the same time, the positioning of cyberloafing, counterproductive work behavior, productivity, and technology as basic themes suggests that, despite their central role across multiple research streams, these topics remain theoretically fragmented, pointing to a need for deeper conceptual synthesis and integrative frameworks. The presence of niche themes such as deterrence theory and the stress–creativity–psychological detachment cluster further reflects the field's specialization, with these lines of inquiry demonstrating strong internal coherence but limited diffusion into the broader literature. Importantly, the identification of emerging themes—including meaningful work, affective events theory,

justice, gamification, personality, and remote work—signals an expanding research frontier driven by contemporary organizational and technological transformations. Collectively, these patterns suggest that future research would benefit from bridging specialized and emerging themes with established core topics, thereby enhancing theoretical integration and advancing a more cohesive understanding of cyberloafing and related workplace behaviors.

Research Gaps and Future Research Direction

Research on the relationship between job satisfaction and cyberloafing is inconclusive. Such that while some studies found positive relationships (Adams Ogirima et al., 2020; Cook, 2017; Mazidi et al., 2020; Quoquab et al., 2015; Zoghbi-Manrique-de-Lara & Gil-Padilla, 2012), the others determined negative relationships (Andel et al., 2019; Askew, 2012; Mercado et al., 2017; Weatherbee, 2010). To clarify this inconclusiveness, we recommend further research to conduct meta-analytical studies. Although some studies stated job dissatisfaction as a driver of cyberloafing, the others also demonstrated cyberloafing as a remedy for the negative effect of workplace aggression on the job satisfaction (Andel et al., 2019). On the other hand, Hensel & Kacprzak (2020) determined a non-significant relationship between motivation and cyberloafing, while Kaptangil et al. (2021) found a low effect of cyberloafing on employee motivation. Based on these finding, we can say that the effect of cyberloafing on employees' job satisfaction, motivation, and creativity interestingly under-researched, thus further research should focus to explore the positive consequences of cyberloafing.

Interestingly, job satisfaction and engagement were found as both predictor and output of cyberloafing. This finding is thought to be due to the positive and negative aspects of cyberloafing. Consistent with this view, Wu et al. (2020) also determined that social cyberloafing has a positive effect on mental health through psychological detachment. More studies are very likely to be done on the bright aspects of cyberloafing in the future with the prediction that information and communication technologies (ICT) becomes more widespread in daily and business life and any jobs will be based on ICT (Keklik et al., 2015; Yildiz & Yildiz, 2022; Yildiz & Yildiz, 2025).

On the other hand, while the research in cyberloafing behaviors seems to be well covered, the socialization part of this construct should be researched more extensively. For instance, social cyberloafing is an emerging research topic positively effects the mental health of employees and evaluate cyberloafing as a socialization tool for them (Wu et al., 2020; Yildiz & Yildiz, 2025). They address that social cyberloafing is indirectly and positively related with the mental health through psychological detachment. Supporting this notion, Andel et al. (2019) also determined cyberloafing as a neutralization agent of the negative effects of workplace aggression on job dissatisfaction and turnover intention. These results signal that cyberloafing can be seen a two-edged sword. It helps the neutralization of stressors and supports the socialization need of employees by contributing to their mental health (Mei et al., 2023). It has also a positive effect on innovative workplace behaviors (Derin & Gokce, 2016). But, if cyberloafing behaviors is not affectively managed, it could lead to destructive consequences such as withdrawal behaviors (Askew, 2012) and social loafing behaviors (Tosuntas, 2020). There is still insufficient knowledge about how to manage cyberloafing effectively, how long the duration should be, which situational factors need to be provided for positive outcomes, and which employees will increase innovation behaviors and creativity as a result of cyberloafing. These questions are currently under-research areas and candidate for future research.

Future studies could also more explicitly connect the resources, engagement, and performance stream with cyberloafing research to clarify how positive organizational resources and leadership practices mitigate disengagement and counterproductive behaviors. Additionally, greater theoretical diversification—by incorporating motivational, affective, and resource-based perspectives—would help advance a more holistic understanding of cyberloafing across varying organizational and technological contexts.

Although deterrence theory and control-oriented approaches remain prominent in the literature, the increasing emphasis on themes such as motivation, commitment, engagement, neutralization, coping, and psychological detachment suggests a shift toward more psychologically grounded explanations of cyberloafing. Future research would benefit from moving beyond purely deterrence-based perspectives by integrating motivational and affective frameworks—particularly self-determination theory and conservation of resources theory—to more fully explain why employees engage in cyberloafing under varying contextual conditions (Deci & Ryan, 2000; Hobfoll, 2001).

Finally, research on employee productivity and workplace internet leisure policies appears as a mature yet narrowly defined niche. Future studies could revitalize this area by examining how flexible work arrangements, remote and hybrid work models, and emerging technologies (e.g., artificial intelligence–based monitoring systems) reshape norms, perceptions, and ethical boundaries related to cyberloafing. Such efforts would not only extend existing frameworks but also enhance the practical relevance of cyberloafing research in contemporary digital work environments.

Limitations

The study has several limitations. First, the data were retrieved from IS-Web of Science database since other databases such as Scopus cover different sources using other databases might have produced different results. The second limitation is that only English studies were included; conducting such a study in a different language might have resulted in different findings. The bibliometric analysis was conducted by employing title, author, institution, country, citation, abstract, keyword, and references of cyberloafing publications. Analyzing full records (if applicable) could produce alternative results. The analyses were performed by using *R*. Therefore, the analysis capacity of the software is limited with the used package (bibliometrix 5.2.1). Different tools may generate different information. The cyberloafing literature is its concentration in economically advanced, which restricts the generalizability of findings. Future studies should incorporate cross-national and comparative designs to capture contextual differences in workplace internet use.

CONCLUSION

This paper conduces to our understanding of the cyberloafing literature in the workplace through its thematic mapping of articles into clusters and detection of new research streams. We defined the most influential authors, articles, journals, institutions and countries through *bibliometrix* and *biblioshiny* packages in *R*. Subsequently, we identified three clusters using a keyword co-occurrence network: cyberloafing's antecedents, consequences, and well-being; workplace internet use and organizational impact; and resources, engagement, and performance. As a result, this study enables researchers to identify underexplored aspects of cyberloafing and to derive novel insights through in-depth examinations of full-text studies.

Data availability

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Conflict of interest

None.

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