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(IJEPC)<https://gaexcellence.com/ijepe>FROM DIGITAL STRESS TO DIGITAL WELL-BEING:
A BIBLIOMETRIC ANALYSIS (2020 -2025)Noor Arifah Moider^{1*}, Tengku Faekah Tengku Ariffin², Hasniza Nordin³¹IPGM Kampus Sultan Mizan, Besut, Terengganu, Malaysia noorarifah@ipgmksm.edu.my <https://orcid.org/0000-0002-1121-339X>²Universiti Utara Malaysia, Sintok, Kedah, Malaysia tfaekah@gmail.com <https://orcid.org/0000-0002-2010-1082>³Universiti Utara Malaysia, Sintok, Kedah, Malaysia nizadin@uum.edu.my <https://orcid.org/0000-0003-3864-9705>

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DOI: 10.35631/IJEPC.1164038**Abstract:**

This study presents a bibliometric analysis of research on digital well-being, focusing on the transition from digital stress to digital well-being in educational contexts between 2020 and 2025. The purpose is to map publication trends, leading contributors, country participation, and dominant thematic structures shaping this rapidly evolving interdisciplinary domain. The keyword co-occurrence analysis reveals that technostress is the main conceptual hub in the structure of the literature, with a close relationship to digital well-being and teacher well-being. Bibliometric techniques were applied to Scopus-indexed journal articles using refined search strings related to technostress, digital stress, and digital well-being. After applying inclusion criteria for year, document type, and language, 2,003 articles were analyzed using VOSviewer for network visualization, clustering, and keyword co-occurrence mapping. Results show an increasingly sharp growth in annual publications. Overall, this study provides a current bibliometric picture and forms the basis for further research that examines how individual, professional and organizational factors interact in shaping digital well-being and professional outcomes in an increasingly digitalized educational environment.

Keyword:

Bibliometric Analysis; Digital Education; Digital Well-Being; Teacher Well-Being; Technostress



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Introduction

The rapid development of digital technologies has transformed the educational landscape, particularly in terms of teaching, learning, and school management. However, the increased reliance on technology also brings challenges such as technostress, digital overload, and emotional fatigue (Moider et al., 2025a). These issues became increasingly significant during and after the COVID-19 pandemic as the use of technologies shifted from a support function to a key component in the implementation of education. These changes have broadened the focus of research from the negative effects of technology use to the broader question of how individuals can maintain health, balance and safety in a digital environment (Arslankara et al., 2022). This topic is now being discussed through the concept of digital well-being (Beardsley et al., 2021; Passey, 2021).

The development of this field has also sparked several bibliometric studies that examine digital stress, technostress and digital well-being. Ghai et al. (2023) map the development and intellectual structure of digital well-being studies, while Septania et al. (2025) examine the development of these concepts in hyper-networked environments. Meanwhile, Almakrob and Aduais (2026) focus more specifically on digital stress through bibliometric, scientometric, meta-analysis and thematic analysis approaches. However, previous studies have generally examined digital stress and digital well-being as two relatively separate research streams, while the educational context only emerges as one of the application domains. This situation suggests that the conceptual development from digital stress to digital well-being, particularly in educational discourse, has not yet been comprehensively mapped.

In this regard, this study was conducted to map the development and structure of knowledge related to technostress, digital stress and digital well-being for the period 2020 to 2025, which is a phase that reflects the rapid increase in the use of digital technology during and after the pandemic. Unlike previous bibliometric studies that tended to examine digital distress or digital well-being as a relatively separate domain, this study integrates these trends in a bibliometric mapping to identify the relationship patterns and conceptual convergence between digital distress and digital well-being. Through performance analysis and science mapping, this study reveals publication trends, key contributors, dominant countries, as well as theme structures through keyword co-occurrence analysis. Particular emphasis is placed on how technostress and digital demands are related to well-being themes. Thus, this study not only provides a current bibliometric picture, but also forms the basis for further research that examines how individual, professional and organizational factors interact in shaping digital well-being and professional outcomes in an increasingly digitalized educational environment.

Literature Review

The concept of digital well-being evolved from a more general discussion of media literacy, technology use, and individual well-being. This concept was first introduced by Gui et al. (2017), who introduced digital well-being as a framework to understand an individual's ability to manage digital stimuli in line with personal goals, values, and social norms. They assert that digital well-being is not solely an issue of overuse of technology but also influenced by an individual's ability to control information flow, multitasking, media use, and social expectations in a digital environment. Büchi (2024) explains that digital practices produce benefits and harms simultaneously, and that their impact on well-being depends on the socio-technical conditions that shape the use of the technology. In the field of education, Passey (2021) brings this concept closer to the context of teachers by showing that the use of technology can support or affect teachers' well-being depending on how it is integrated in professional practice. However, it is emphasized that technology not only influences the teaching process, but also impacts teachers' work experience, autonomy, competence and professional balance. Based on these developments, digital well-being in education can be understood as the ability of individuals, particularly teachers, to use technology satisfactorily, safely and healthily in performing professional roles. At the same time, teachers are able to maintain a balance between the benefits of digital and the stresses arising from its use.

The development of this concept in line with the increase in research on technostress and digital stress (Feng et al., 2025; Pagán-Garbín et al., 2024; Yang et al., 2025). Both concepts pay attention to the psychological pressures that increase due to technological demands, such as constant connectivity, digital burnout and affect work-life balance (Moider et al., 2025a). These studies have also attracted the attention of bibliometric researchers. Ghai et al. (2023) were among the first to map the field of digital well-being specifically by analysing 102 publications from 2016 to 2023 using Scopus and Web of Science data. The study focused on the growth of the field, publication performance and key terms that make up the domain of digital well-being. Septania et al. (2025) then expanded the mapping by analysing 226 Scopus publications for the period 2014 to 2024. The study showed that digital well-being as a multidisciplinary field that includes mental health, youth, digital skills, workplace and digital literacy, as well as identifying new themes such as adolescent well-being, scale development and sustainable digital engagement. These two studies provide important insights into the development of the field of digital well-being in general, but do not provide particular focus to how the literature evolves from digital distress to digital well-being in an educational context.

The study by Almakrob and Alduais (2026) focuses more specifically on digital stress. Using a multi-method approach that combines bibliometric, scientometric, meta-analysis and thematic analysis of 215 documents, the study sheds light on the development of the concept of digital stress, its conceptual limits and its relationship to technostress and digital well-being. Their findings show that digital stress is evolving as a multidimensional construct related to ongoing connectivity, mental health and social context, while digital well-being is emerging as one of the main responses to these stresses. However, the main focus of the study is to explain the digital stress construct and its measurement issues, rather than specifically mapping the intellectual evolution from digital stress to digital well-being in education.

In contrast, this study differs from previous bibliometric analyses in two main aspects. Firstly, this study aims to examine technostress as the main issue related to digital well-being, teacher well-being, and psychological well-being, along with themes that appear through co-

occurrence analysis. Secondly, the mapping for the period 2020 to 2025 allows the study to examine the development of the field in a very critical phase, starting from the boom in technology use during the pandemic to the strengthening of digital practices post-pandemic. Thus, this study not only maps the productivity of publications but seeks to explain how the conceptual structure and theme of research have evolved from a focus on digital stress to digital well-being that is more preventive, adaptive and sustainable.

Research Question

RQ1 - What are the research trends in digital well-being studies according to the year of publication?

RQ2 - Who are the most prolific authors contributing to the literature on digital well-being in education, and how is their scholarly productivity distributed?

RQ3 - Which countries are the leading contributors to research on digital well-being in education in terms of publication output and citation influence?

RQ4 - What are the dominant and emerging research themes in digital well-being research within educational settings, as revealed through keyword co-occurrence analysis?

Methodology

Research Design

This study uses a bibliometric approach to map the development, structure and relationship of themes in the literature related to technostress, digital stress and digital well-being. Bibliometric analysis allows publication patterns, researcher productivity, country contributions, and relationships among keywords to be systematically identified based on scientific publication metadata (Donthu et al., 2021; Verbeek et al., 2002). This approach is appropriate for the purpose of the study because the focus is not to synthesize the empirical impact of each study individually, but to identify the knowledge structures and patterns of conceptual relationships that develop within a research area.

Data Source and Search Strategy

Bibliographic data is obtained from the Scopus database using the Advanced Search function. Data were retrieved from Scopus on 15 January 2026. The search is performed through the TITLE-ABS-KEY field to ensure that the main term appears in the title, abstract or keywords of the publication. The search strategy combines four key terms, namely technostress, digital stress, teacher well-being and digital well-being. Scopus was chosen for its extensive coverage of multidisciplinary academic journals as well as its suitability for bibliometric analysis and science mapping (Donthu et al., 2021). The search strings used are:

Table 1: The Search String

Scopus	TITLE-ABS-KEY ((technostress OR "digital stress" OR "teacher well-being" OR "digital well-being")) AND PUBYEAR > 2019 AND PUBYEAR < 2026 AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (LANGUAGE , "English"))
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The period 2020 to 2025 was chosen to capture the development of contemporary literature during the accelerated phase of digital technology adoption during the COVID-19 pandemic and the period of strengthening digital practices after the pandemic. The selection of this period allows the study to focus on the latest developments related to digital stress and digital well-being. This is compared to the previous literature which was more focused on the use and acceptance of ICT in general.

Eligibility Criteria and Data Screening

Document selection was done in stages based on the duration of publication, document type, source type, and language. An initial search yielded 3,564 records. Once the search was limited to publications between 2020 and 2025, the number was reduced to 2,977 records. Next, only English-language journal articles were selected, while conference proceedings, review articles, book chapters, and other types of documents were excluded. The filtering process resulted in a final dataset of 2,003 articles to analyse.

Table 2: The Selection Criteria for Searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Time line	2020 – 2025	< 2020
Literature type	Journal (Article)	Others

Bibliometric Analysis

Metadata for 2,003 articles, including year of publication, and keywords, was exported from Scopus and analyzed using VOSviewer 1.6.19. The analysis consisted of two main components, namely performance analysis and science mapping. Performance analysis was used to assess the progress of publications by year, author productivity, and national contribution. Meanwhile, science mapping was used to identify the structure of relationships between research themes through keyword co-occurrence analysis (Donthu et al., 2021).

Co-occurrence analysis is used to identify how often a keyword co-occurs in a dataset. In the VOSviewer visualization, the size of the nodes indicates the degree to which a keyword occurs, while the relationships and distances between nodes reflect the strength of associations between terms. Keywords that have a similar relationship pattern are grouped in clusters, thus allowing dominant theme structures and conceptual relationships in the literature to be identified (van Eck & Waltman, 2010).

Keyword co-occurrence analysis was performed using the full counting method with a minimum of 5 occurrences per keyword. Keywords that had term variations but referred to the same concept were standardized before the formation of the network map.

Findings and Discussion

RQ1. What are the Research Trends in Digital Well-Being Studies According to the Year of Publication?

The findings reveal a consistent and significant increase in the number of publications related to technostress and digital well-being over the period 2020 to 2025. The number of publications increased from 112 articles in 2020 to 143 articles in 2021, before increasing more significantly to 263 articles in 2022 and 327 articles in 2023. This trend continues with 419 articles in 2024 and reached a high of 739 articles in 2025. The pattern indicates that issues related to stress and digital well-being have grown into an area of research that gained increasing attention over the past six years.

The increase in publications after 2020 can be attributed to major changes in the way technology is used in employment and education during the COVID-19 pandemic. The abrupt shift to online teaching, remote work, and platform-based communication has increased reliance on digital technologies. The scenario has changed the environment into a digital transformation phase (Moider et al., 2025b). Thus, broadening researchers' attention to issues such as technostress, digital fatigue, and the well-being of technology users (Williamson et al., 2020).

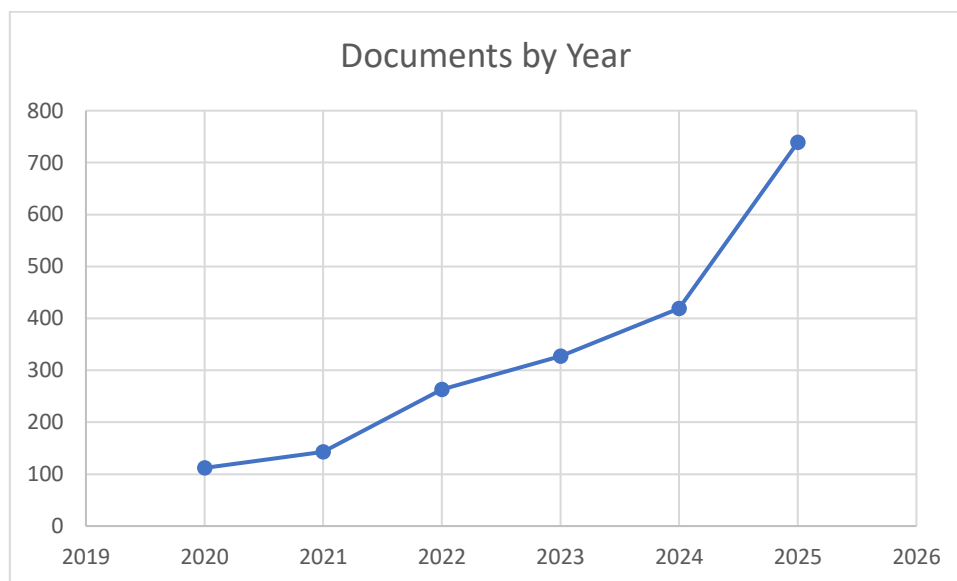


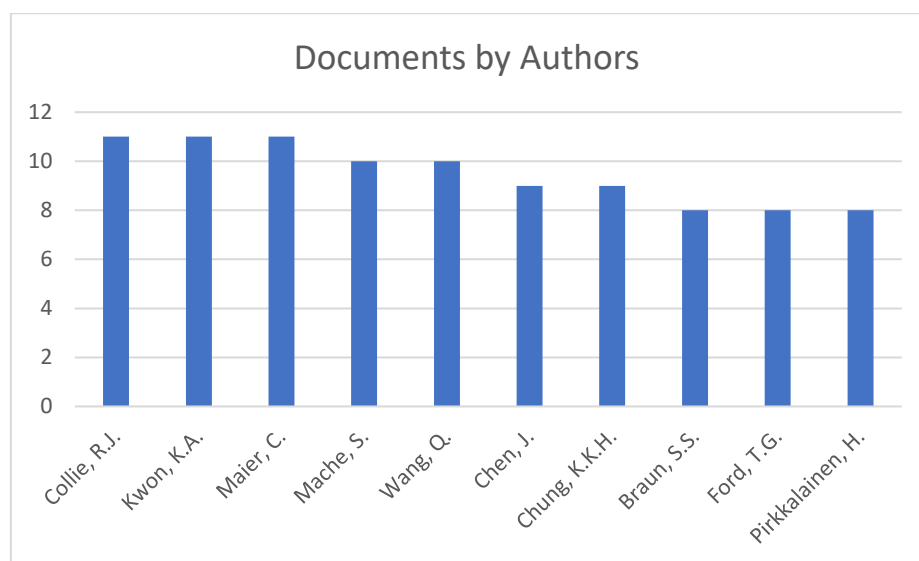
Figure 1: Trend of Research in Digital Well-Being by Years

In the context of education, the increasingly intensive use of technology also raises questions about how digital demands affect the well-being of teachers and students. It also includes issues of workload, technological stress, and the balance between professional demands and personal life (Passey, 2021). However, this increase in the number of publications does not in itself prove that the field has shifted from digital stress to digital well-being. On the contrary, publishing trends show that both issues are gaining more and more attention in contemporary literature.

Table 3: The Publications in Digital Well-Being based on Years

Year	Number of Publications
2025	739
2024	419
2023	327
2022	263
2021	143
2020	112

RQ2. Who are the Most Prolific Authors Contributing to the Literature on Digital Well-Being in Education, and How is their Scholarly Productivity Distributed?

**Figure 2: The Top Authors in Digital Well-Being Publications****Table 4: The Publications In Digital Well-Being Based On The Top Authors**

Author Name	Number of Publications
Collie, R.J.	11
Kwon, K.A.	11
Maier, C.	11
Mache, S.	10
Wang, Q.	10
Chen, J.	9
Chung, K.K.H.	9
Braun, S.S.	8
Ford, T.G.	8
Pirkkalainen, H.	8

The findings reveal that the productivity of authors in the fields of technostress, digital stress and digital well-being is relatively dispersed and not concentrated in a particular researcher or group. Based on Table 4, Collie, R. J., Kwon, K.S. and Maier, C. each recorded 11 publications

within the measured period. It was followed by Mache, S. and Wang, Q. with 10 publications. Chen, J and Chung, K.K.H. each produced 9 publications. Meanwhile, Braun, S.S., Ford, T.G. and Pirkkalainen, H. each contributed 8 publications. A small difference between the top authors suggests that knowledge generation in this field is spread across several research groups rather than being dominated by a particular scholar.

This pattern based on Figure 2 reflects the increasingly multidisciplinary nature of the field. The top authors come from different research backgrounds, including teacher well-being, educational psychology, information systems, technostress and job well-being. Thus, such productivity distributions indicate that research related to digital well-being develops through several interconnected scientific streams, rather than through a homogeneous research tradition. In a bibliometric context, the repeated presence of several authors in different publications also indicates the existence of a continuum of research and a continuous scholarly interest in issues of stress and well-being in the digital environment. However, the number of publications alone is not enough to determine the scholarly influence of an author. Productivity needs to be distinguished from impact, which is usually judged through indicators such as number of citations, average citations or total link strength. Therefore, these findings are more accurately interpreted as an overview of who is most actively publishing studies in that field, rather than who is most scientifically influential.

RQ3. Which Countries are the Leading Contributors to Research on Digital Well-Being in Education in Terms of Publication Output and Citation Influence?

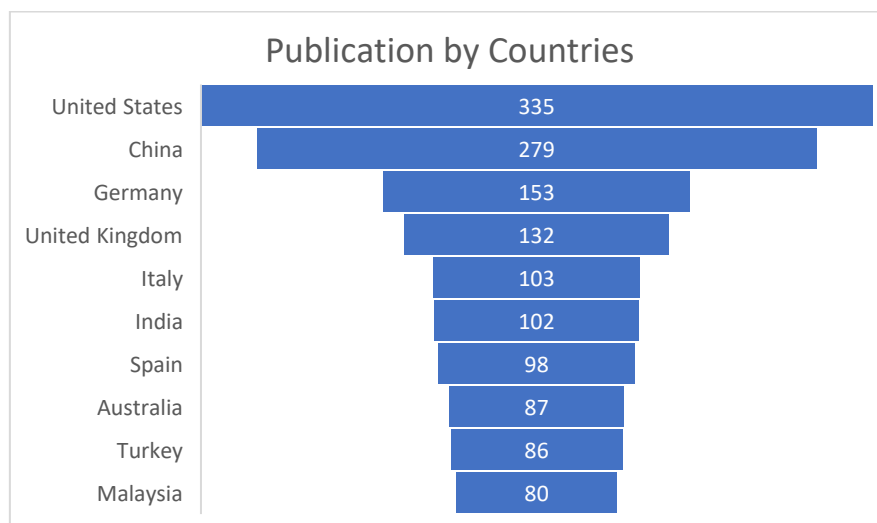


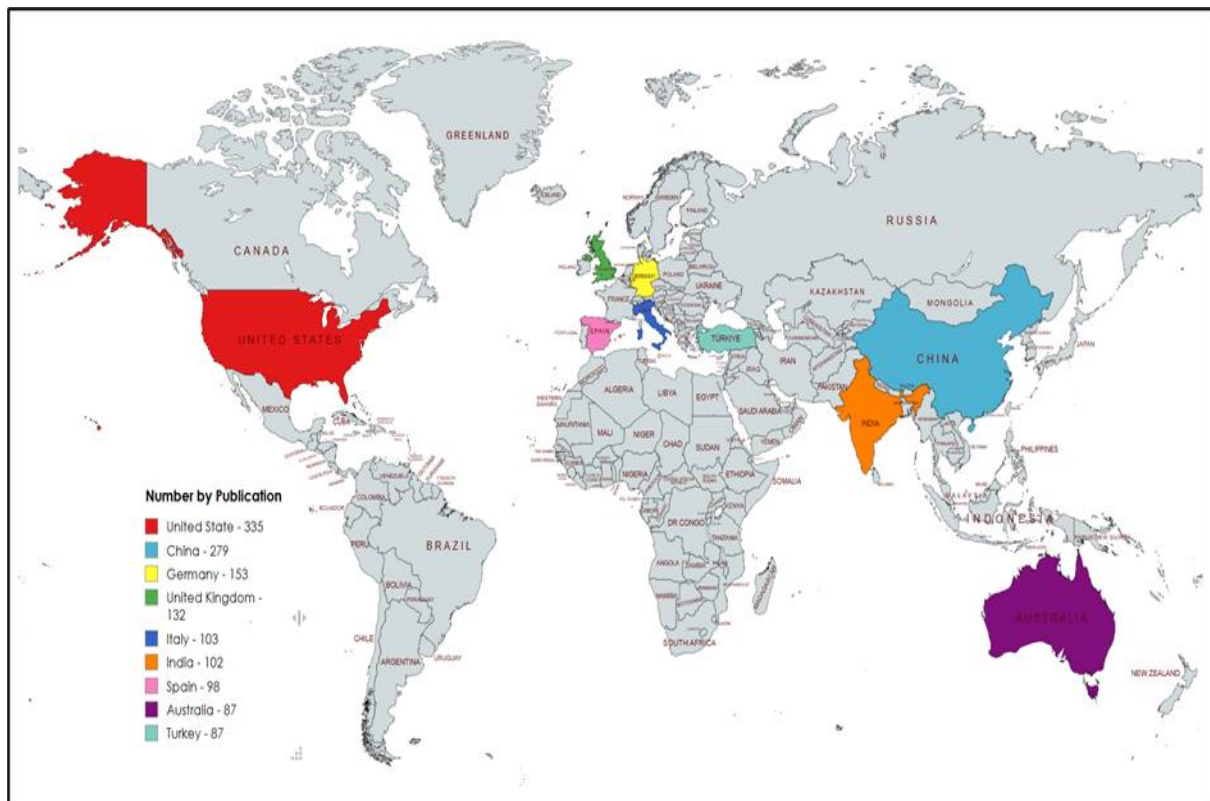
Figure 3: The Top Countries Contributing to Digital Well-Being Publications

Based on Figure 3, the findings reveal that research related to digital stress and digital well-being has evolved as a global agenda, involving developed countries as well as emerging economy countries. For example, the United States is the highest country published in this field, while Malaysia also included in the top 10 country publishing 80 articles.

Table 5: The Publication on Digital Well-Being based on the Country

Country	Number of Publications
United States	335
China	279
Germany	153
United Kingdom	132
Italy	103
India	102
Spain	98
Australia	87
Turkey	86
Malaysia	80

The presence of Malaysia, India, and Turkey in the group of key contributors also shows that this issue is not limited to the Western context. On the other hand, the increasing digitalization of education and work has made technostress, digital well-being and its implications for individuals and organizations a concern across social and educational systems.

**Figure 4: The Distribution of Digital Well-Being Research by Country**

RQ4. What are the Dominant and Emerging Research Themes in Digital Well-Being Research within Educational Settings, as Revealed Through Keyword Co-Occurrence Analysis?

Based on Figure 5, keyword co-occurrence analysis reveals that technostress is the main conceptual hub in the structure of the literature, with a close relationship to digital well-being, teacher well-being, psychological well-being, job satisfaction, higher education, digital transformation and COVID-19. Around this hub also emerge themes of digital stress and demands such as overload, screen exposure, burnout, anxiety, fomo (fear of missing out), fatigue, emotions, and exhaustion. This pattern shows that the digital well-being discourse is still closely related to issues of stress, burden and digital technology-based work demands.

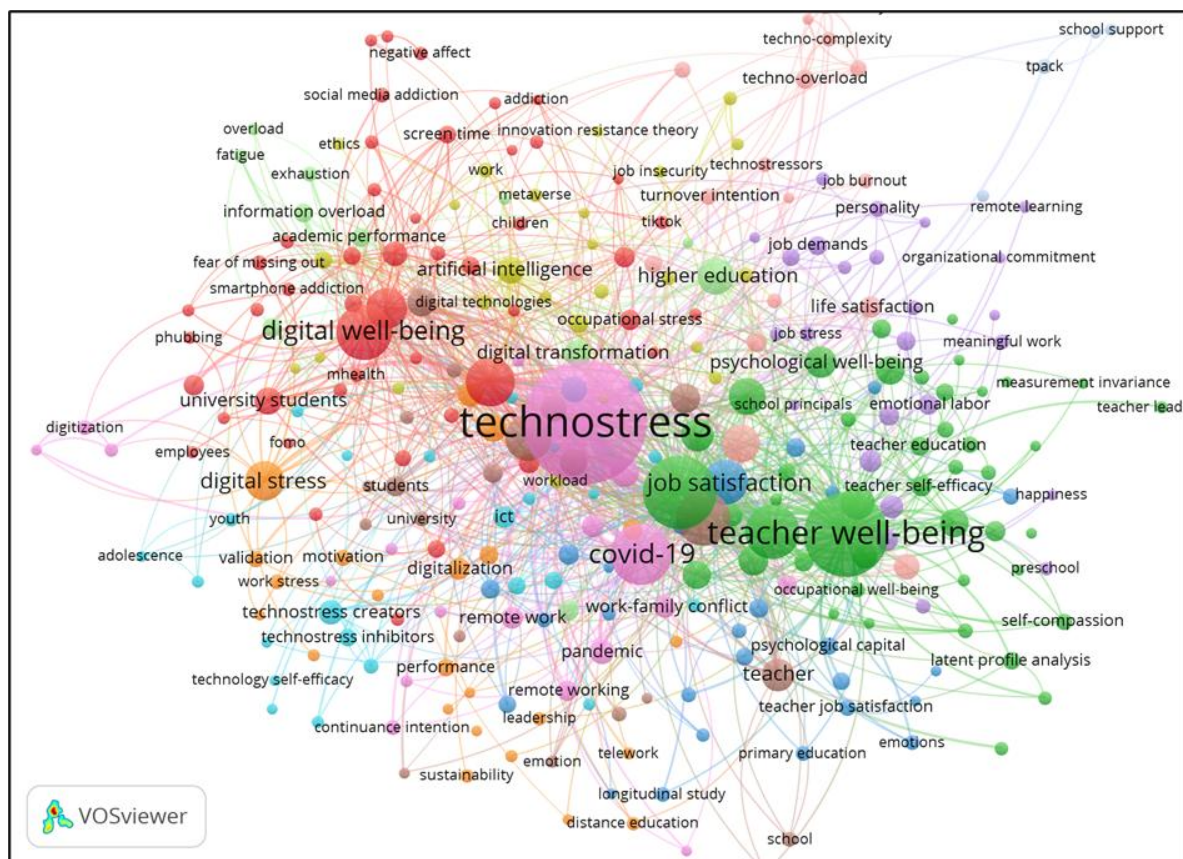


Figure 5: The Co-Occurrence of the Dominant and Emerging Research Themes in Digital Well-Being

In the context of education, a clear sub-network is also formed through the themes of teacher well-being, teacher self-efficacy, school leadership, higher education, university students, and TPACK. At the same time, themes such as psychological well-being, emotional labour, meaningful work and life satisfaction show the development of discourse towards occupational and psychological well-being. The emergence of AI, metaverse, social media addiction and smartphone addiction shows that the issue of digital well-being is growing with more specific and complex forms of technology use. Overall, these findings reveal a conceptual convergence between technostress, digital stress and digital well-being, rather than three domains that develop in isolation. In the context of education, the relationship also links individual,

professional, and organizational factors. This pattern provides the basis for further research to examine how digital demands and organizational environmental factors affect digital well-being and teacher professional outcomes.

Conclusion

This bibliometric study shows that research related to technostress, digital stress and digital well-being is growing rapidly between 2020 and 2025. Increased publications, multi-country participation and wide distribution of authors indicate that this field is gaining attention across disciplines and contexts. However, the main contribution of this study lies in mapping the conceptual relationship between digital stress and digital well-being within a single knowledge structure.

Most importantly, keyword co-occurrence analysis reveals that technostress is the main issue related to digital stress and digital well-being. In the context of education, themes such as teacher self-efficacy, school leadership, and TPACK also form a significant sub-network. This pattern indicates that digital well-being is not only related to an individual's experience using digital technology, but also is related to job demands, professional effectiveness, and organizational factors. Thus, this study provides a current bibliometric picture, and at the same time, forms the basis for further research that examines how individual, professional and organizational factors interact in shaping digital well-being and professional outcomes in an increasingly digitalized educational environment.

Limitation

The study was limited to English-language journal articles indexed in the Scopus database for the period 2020 to 2025, hence, publications from other databases or in other languages may not be represented. In addition, bibliometric analysis relies on available metadata and keywords, which can be influenced by variations in terms between studies.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Author Contributions Statement

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

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C : Conceptualization

M : Methodology

So: Software

Va: Validation

Fo: Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su: Supervision

P : Project

administration

Fu: Funding acquisition

Ethics Statement

This study employed bibliometric data obtained from the Scopus database and did not involve human participants, animals, personal data, or any form of intervention. Therefore, ethical approval and informed consent were not required.

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