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Research Paper

Assessing Digital Literacy Among Young Professionals: A Research Mapping Review in the Context of Knowledge Workers

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Abstract

This study examines the impact of digital transformation on knowledge workers, particularly young professionals, and their use of digital tools in the workplace. It addresses a gap in the literature by exploring how digital literacy affects adaptability, productivity, and job satisfaction in dynamic environments. Unlike previous studies that focus on educational settings or older knowledge workers, this research links digital literacy to employability, knowledge sharing, and innovation among young professionals. Using bibliometric analysis, the study identifies key themes such as digital literacy, knowledge management, and professional development. The findings show that digital literacy not only enables the use of new technologies but also fosters creativity and knowledge sharing, crucial in information-driven industries. The COVID-19 pandemic accelerated the need for digital adaptation, introducing challenges like technostress and information overload, which impact well-being and decision-making. This study underscores the importance of equipping young professionals with strong digital literacy to meet the demands of knowledge workers. It calls for organizations and educational institutions to prioritize digital skills training to bridge the digital divide and prepare the future workforce.

Keywords: *Digital Literacy; Employability; Knowledge Management; Creative Industries; Information Literacy*

INTRODUCTION

Digital transformation and the rapid adoption of technological advancements have reshaped various sectors, including education, communication, and work environments. Knowledge workers, often referred to as individuals engaged in cognitive, creative, or information-based work, are increasingly impacted by the digital landscape. The younger generation, particularly Millennials and Gen Z, has emerged as a central focus in the context of these transformations due to their familiarity with and reliance on technology (Lazar et al., 2023). Understanding how this demographic interacts with digital tools is crucial for predicting future labor trends and optimizing work environments to enhance productivity. However, the degree to which digital literacy influences their performance and adaptability as knowledge workers remains underexplored (Hecker & Loprest, 2019; Le et al., 2022).

Previous research has extensively examined digital literacy, with a focus on educational settings, as it plays a fundamental role in students' learning processes. Studies have delved into digital fluency (Tınmaz et al., 2022), media literacy (Hecker & Loprest, 2019), and information-seeking behaviors (Meyers et al., 2013) within academic environments, recognizing these competencies as essential for navigating the digital world. Moreover, the role of digital transformation and technological adoption in shaping the future workforce—particularly in the context of well-being, innovation, and performance—requires further exploration. This gap presents an opportunity to investigate how digital literacy influences young knowledge workers'

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adaptability, productivity, and overall job satisfaction.

The current study aims to fill this gap by exploring the role of digital literacy in shaping the professional experiences of Millennial and Gen Z knowledge workers. Using a bibliometric analysis approach, this research will examine the key themes and trends emerging in the literature concerning digital literacy, knowledge worker, and the younger generation. By employing multidimensional scaling (MDS) to assess how these workers perceive their digital competencies and how they position themselves relative to competitors in the digital economy, the study introduces a novel approach to understanding the implications of digital literacy in the modern workplace.

LITERATURE REVIEW

Knowledge Worker

A knowledge worker, as defined by Peter Drucker, is an individual whose primary role involves managing abstract concepts, data, and information rather than producing physical goods, relying on theoretical and analytical expertise to innovate and develop strategies (De Sordi et al., 2020). Unlike traditional occupations focused on manual tasks and predefined roles (Fernández-Macías et al., 2018), knowledge workers require cognitive abilities, critical thinking, and decision-making skills to solve conceptual problems using data and technology (De Sordi et al., 2020). Examples include engineers, doctors, and data analysts (De Sordi et al., 2020). The rise of the digital age has increased the prominence of knowledge workers, especially as big data and AI demand professionals who can convert vast information into actionable insights (Mikalef et al., 2018; Baslom & Shu, 2019). As innovation and adaptability become crucial in industries, knowledge workers offer a competitive advantage by solving complex problems and driving organizational success (De Sordi et al., 2020), shifting the workforce toward jobs prioritizing cognitive skills over manual labor (Rožman et al., 2023).

Digital Literacy

Digital literacy is defined as the ability to critically and effectively use digital technologies for communication, information retrieval, problem-solving, and knowledge creation, encompassing skills beyond basic technical abilities, such as engaging with digital content and responsibly using platforms (Kasımoğlu et al., 2022). It integrates traditional literacy with critical thinking and problem-solving, requiring individuals to interact with digital tools to communicate and innovate effectively (Meyers et al., 2013). As digital platforms replace print-based media, individuals need broader skills like assessing information validity and engaging in digital networks ethically (Hecker & Loprest, 2019). In today's interconnected world, digital literacy has become essential, transforming how people access information and work (Murray et al., 2022). It helps individuals navigate vast data, recognize misinformation, and engage critically with online content (Hassoun et al., 2023). Digital literacy supports education by enabling virtual collaboration and developing research skills (Le et al., 2022), while in the workforce, it has become fundamental as industries adopt new technologies that demand adaptability (Pereira, 2016). Moreover, it fosters digital citizenship, encouraging responsible online behavior and data protection (Meyers et al., 2013), making ethical use of evolving digital platforms increasingly important.

Young professional

A young professional refers to an individual in the early stages of their career, typically between ages 21 and 35, who transitions from academic settings into professional environments and focuses on career growth and adapting to workforce demands (Barrows, 2017). They are distinguished by their ambition, technological proficiency, and career development in fast-paced

industries (Kumar, 2019). In the knowledge-based economy, young professionals play a key role in innovation and information management, engaging in problem-solving and decision-making, often relying on digital tools like data analytics and artificial intelligence (Lazar et al., 2023). Their fluency in digital literacy sets them apart, allowing them to integrate technology effectively and participate in collaborative networks that enhance their interdisciplinary performance (Van Laar et al., 2017). Understanding their work behavior, learning preferences, and adaptability is crucial for designing organizational and educational tools to support their success (Lazar et al., 2023; Hoffman et al., 2020). Young professionals navigate a landscape where knowledge worker's and digital literacy are essential, and exploring how they manage digital tools, collaborate, and innovate offers valuable insights for organizations aiming to harness their potential (Hecker & Loprest, 2019). As pivotal players in knowledge-based industries, young professionals are shaping the present and future of work, making the study of their digital literacy and cognitive flexibility essential to improving their workforce contributions (Malkawi & Khayrullina, 2020; Karsenti et al., 2020; Demirkan & Spohrer, 2018).

RESEARCH METHOD

This study applies bibliometric research method to review the research maps of current literature in digital literacy among young professional knowledge worker. We define three main theme to design search string design presented in Table 1.

Table 1. Keywords Search String Design

No.	Theme	Search string combination
1.	Knowledge Work	("knowledge worker*" OR "information worker*" OR "digital worker*" OR "intellectual worker*" OR "creative worker*" OR "cognitive worker*")
2.	Digital Literacy	("digital literacy" OR "digital competenc*" OR "technological literacy" OR "ICT literacy" OR "media literacy" OR "information literacy" OR "digital skill*" OR "digital fluenc*")
3.	Young Professional	("young generation*" OR youth* OR "millennial*" OR "Gen Z" OR "Generation Z" OR "younger adult*" OR "young professional*")

This research harvest the metadata from Scopus database. The choice to scopus database has been recommended by previous research in the bibliometric fields (Zamrudi, 2023; Zamrudi et al., 2023). The bibliometric data analysis employed in this study are twofolds. First, we use the Vos Viewer software to depict the thematic occurrence of current fields. Previous research has recommended to use the VosViewer to maps the occurrence networks due to its convenience and ease to remove any unrelated terms within the data analysis. Moreover, to maps the literature, we also use the thematic maps to define the developmental or declining topics to predict future trends using Bibliometric.

FINDINGS AND DISCUSSION

The finding from data analysis indicates eight clusters. The finding and discussion of each section will be presented as follows.

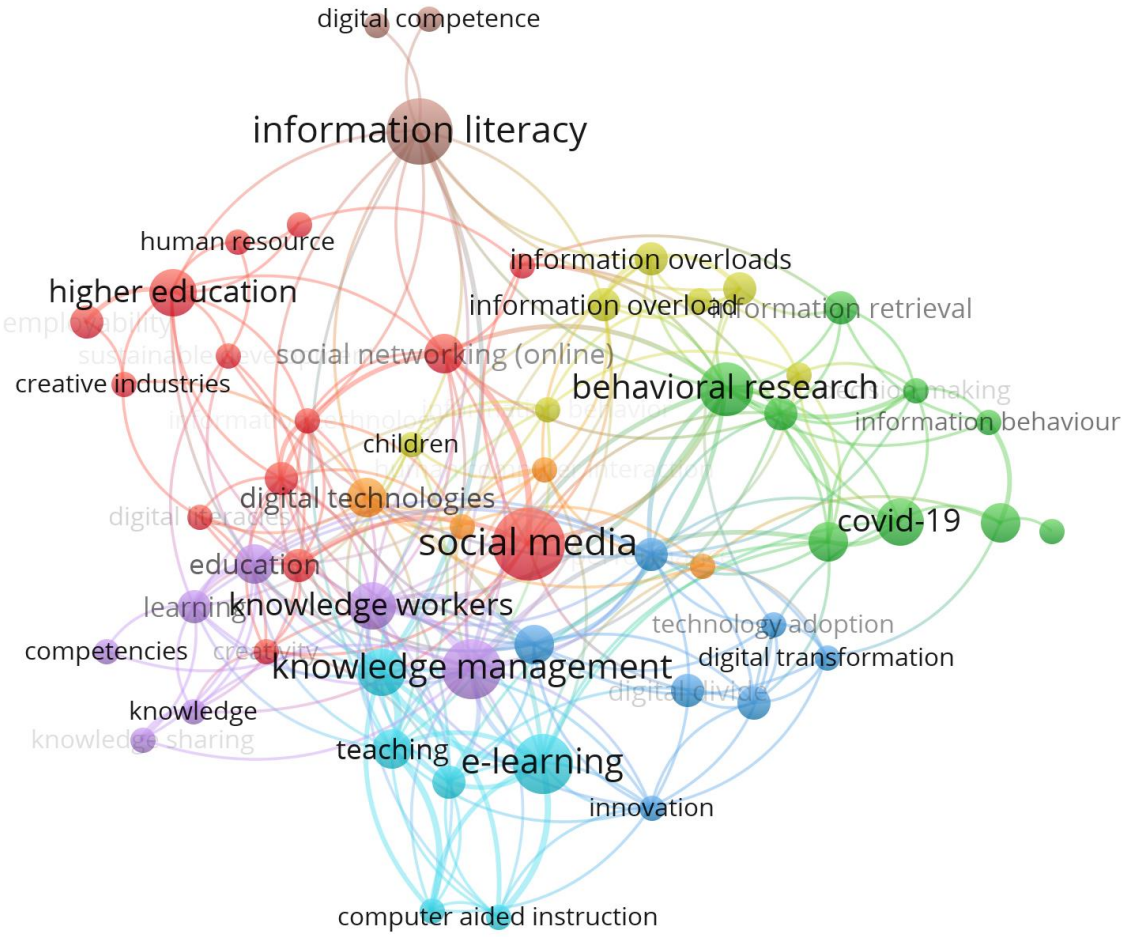

Figure 1. Thematic Co-Occurrence

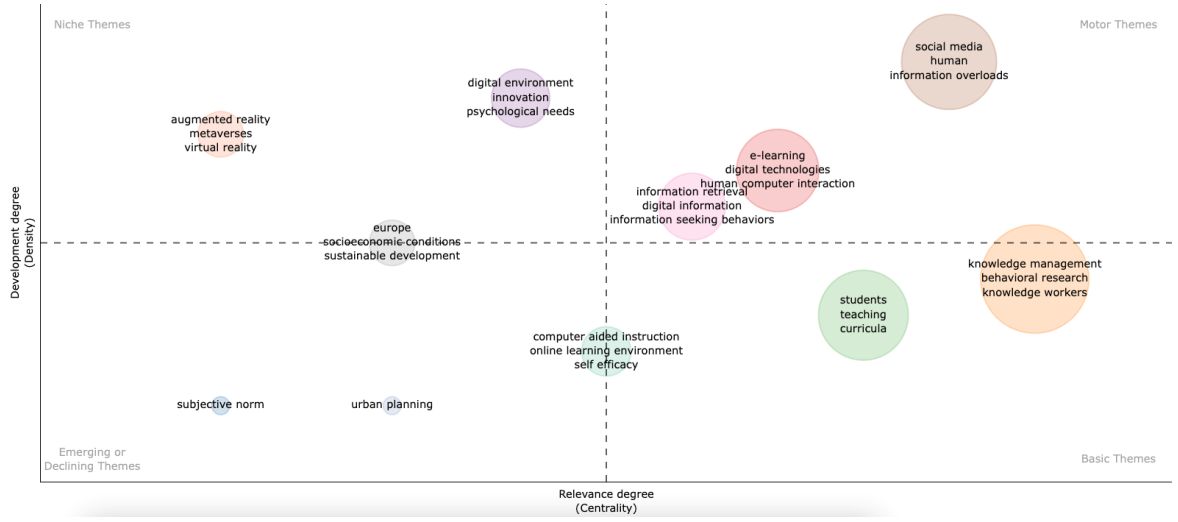

Figure 2. Thematic Map

Information Literacy and Its Central Role in the Digital Age

At the top of the network, information literacy emerges as a central theme, reflecting its fundamental importance in navigating the modern digital environment. As institutions focus on equipping individuals with these skills, it becomes clear that information literacy is no longer just

a technical competency—it is now a critical cognitive skill necessary for success in the digital age (Neuman, 2021). The growing complexity of the digital ecosystem, exacerbated by the proliferation of online information, has made it crucial for individuals to differentiate between valuable insights and misinformation, underscoring the need for robust educational strategies aimed at fostering these skills.

Furthermore, higher education's focus on information literacy reflects the increasing need for students to not only acquire academic knowledge but also develop lifelong learning habits that enable them to thrive in data-driven professional environments. As the digital economy expands, higher education must ensure that its graduates can handle the rapid influx of digital information, a competency that is also vital for knowledge workers (Pereira, 2016). This thematic connection supports findings in research that suggest information literacy as a primary determinant of professional success in knowledge-intensive industries.

Social Media's Pivotal Role in Knowledge Work and Behavioral Dynamics

At the center of the network, social media is prominently positioned, reflecting its pervasive influence in shaping both professional and personal lives. Its strong connections to knowledge workers, behavioral research, and knowledge management underscore the role that digital platforms play in the creation, sharing, and management of information (Jarrahi et al., 2019). Social media has become a vital tool for knowledge workers, offering avenues for networking, collaboration, and knowledge dissemination.

The linkage to behavioral research signifies the growing interest in understanding how individuals interact with social media, particularly in professional settings. As digital platforms increasingly shape communication, collaboration, and decision-making, researchers have turned their attention to the psychological and social impacts of these interactions (Altuwairiqi et al., 2019). The exploration of behavioral dynamics on social media reveals how digital tools affect cognitive load, productivity, and even mental health, as professionals and students alike face challenges such as technostress and digital fatigue (Riedl et al., 2013).

Behavioral Research and the Impact of COVID-19 on Human Behavior

Behavioral research, connected to COVID-19, decision-making, and technostress, highlights the significant impact of the pandemic on digital behavior and decision-making processes. The shift to remote work and virtual collaboration during the pandemic accelerated digital transformation but also introduced new stressors. Technostress, defined as the stress experienced due to the rapid adoption of technology, became a widespread issue as employees and students navigated unfamiliar digital platforms and workflows. Fuchs (2021) and Khuzaini and Zamrudi (2021) indicate that the sudden reliance on digital technologies not only increased productivity demands but also placed significant mental strain on individuals, thereby influencing organizational policies around employee well-being and decision-making.

The pandemic's effect on decision-making is particularly noteworthy, as individuals and organizations had to make critical choices under unprecedented levels of uncertainty. Research during this period has focused on how digital environments influenced cognitive processes, such as risk perception and information processing, further complicating the decision-making landscape (Fuchs, 2021; Schippers & Rus, 2021). These findings align with the visualized connections between behavioral research and decision-making, illustrating how the pandemic reshaped human behavior in digital contexts, both professionally and personally.

E-Learning and the Evolution of Educational Practices

Lower in the network, e-learning emerges as a key theme, closely linked to teaching, computer-aided instruction, and digital skills. This reflects how educational institutions have adapted to the demands of the digital era, particularly during the pandemic. The rapid shift to online learning environments necessitated the integration of technology into teaching methods, making digital literacy an essential skill for both educators and students (Ennam, 2024; Murray et al., 2022). E-learning has transformed educational delivery, allowing for greater flexibility and access, but it also requires significant technological proficiency, emphasizing the need for continual development of digital skills.

The connection between e-learning and computer-aided instruction underscores the increasing reliance on technology to enhance educational experiences. Digital platforms enable interactive learning, personalized feedback, and access to a vast array of online resources. This shift, accelerated by the pandemic, forced educators to rethink traditional pedagogies and adapt to a tech-driven landscape (Alam et al., 2022). The growing importance of digital skills in education mirrors the broader trend of digital transformation across industries, highlighting the need for comprehensive approaches to digital literacy that extend beyond basic usage to encompass critical thinking and information management (Malkawi & Khayrullina, 2020).

The Digital Divide and Its Influence on Technology Adoption and Innovation

Further down the thematic network, the digital divide is linked to technology adoption and innovation, highlighting the persistent issue of unequal access to digital technologies. This divide exacerbates existing inequalities in education, work, and innovation, as those without adequate access to technology are left behind in terms of skills and opportunities. Research by Yu et al. (2016) shows that disparities in technology access can hinder the adoption of innovative tools and limit individuals' ability to fully engage in digital work environments.

The pandemic further highlighted these inequalities, as remote work and online education became the norm, disproportionately affecting those with limited access to technology. Bridging the digital divide remains a critical challenge, as inclusive access to digital resources is essential for fostering innovation and ensuring equitable participation in the knowledge economy (Caparas & Yango, 2023).

COVID-19 as a Catalyst for Rapid Digital Transformation

Finally, COVID-19 stands out as a key catalyst within the thematic network, pushing forward rapid digital transformation across industries and education. The pandemic forced organizations to adopt digital technologies at an unprecedented pace, reshaping how individuals and businesses interact with technology. The impact of this transformation can be seen in the lasting changes to work environments, educational practices, and organizational strategies (Khuzaini & Zamrudi, 2021; Reuschl et al., 2022). The pandemic also intensified the need for digital literacy, as individuals had to quickly adapt to new digital tools and platforms to remain productive and engaged (Petrová et al., 2022; Srivastava, 2023).

CONCLUSIONS

The thematic clusters outlined above provide a comprehensive understanding of how various elements related to employability, digital literacy, human behavior, education, and technology adoption interconnect. These clusters underscore the growing importance of digital competence, knowledge management, and the critical role of technology in shaping modern education and workforce dynamics.

LIMITATION & FURTHER RESEARCH

This analysis provides broad insights, but it has several limitations. First, the thematic clusters focus on general concepts like knowledge management and digital competence, overlooking specific regional differences in digital literacy, particularly in developing countries. Additionally, while technology adoption is highlighted, the influence of social and cultural factors on how individuals and organizations use digital tools is underrepresented. Another limitation is the absence of longitudinal studies, which would better illustrate how digital literacy and employability change over time as technology advances.

Future research should explore regional differences in digital literacy, especially in developing countries where technology access impacts employability and education. Longitudinal studies are also needed to understand how digital transformation and technostress evolve over time. Additionally, research should investigate how social and cultural factors influence digital literacy and employability. Lastly, aligning educational curricula with the demands of the digital economy is crucial for preparing future knowledge workers. These considerations will provide a more comprehensive framework for addressing the challenges and opportunities of a digital-first world.

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