International Journal of Modern Education
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021

INTERNATIONAL JOURNAL OF MODERN EDUCATION (IJMOE)
www.ijmoe.com

THE DIGITAL CLASSROOM AND BEYOND: A SCOPUS AI-ASSISTED OF MENTAL WELLBEING IN ONLINE HIGHER EDUCATION

Muna Abdul Jalil[1*], Norhasyikin Rozali[2], Siti Murni Mat Khairi[3]

[1] Faculty of Business And Management, Universiti Teknologi MARA Cawangan Kedah, Kampus Sungai Petani, 08400 Merbok, Kedah, Malaysia
Email: munaaj741@uitm.edu.my
[2] Faculty of Business And Management, Universiti Teknologi MARA Cawangan Kedah, Kampus Sungai Petani, 08400 Merbok, Kedah, Malaysia
Email: norhasyikin@uitm.edu.my
[3] Faculty of Business And Management, Universiti Teknologi MARA Cawangan Kedah, Kampus Sungai Petani, 08400 Merbok, Kedah, Malaysia
Email: sitimurni@uitm.edu.my
[*] Muna Abdul Jalil

Article Info:

Article history:
Received date: 20.09.2025
Revised date: 10.10.2025
Accepted date: 10.11.2025
Published date: 04.12.2025

To cite this document:

Jalil, M. A., Rozali, N., & Khairi, S. M. M. (2025). The Digital Classroom and Beyond: A Scopus AI-Assisted of Mental Wellbeing in Online Higher Education. *International Journal of Modern Education, 7* (28), 265-280.

DOI: 10.35631/IJMOE.728021

Abstract:

The rapid shift to digital classrooms in higher education, accelerated by the COVID-19 pandemic, has raised concerns about students' mental wellbeing. Despite the increased reliance on digital learning environments, the psychological impacts of online education, especially regarding artificial intelligence (AI) and intelligent systems, remain underexplored. This study aims to address this gap by conducting a Scopus AI-assisted review of the literature on mental wellbeing in online higher education. The objectives are to analyze research trends, develop a concept map of key constructs, integrate expert insights, and identify emerging themes for future research. The review, based on studies published from 2018 to 2025, revealed three key themes: the psychological effects of the pandemic-induced transition to online learning, the role of institutional support in student mental health, and the use of digital tools to mitigate negative impacts. Emerging themes include AI-based interventions, positive psychology, and the importance of emotional support and proactive personality traits in enhancing student engagement. The findings highlight the need for higher education institutions to incorporate mental health support into digital education design. The study offers theoretical contributions to models like Self-Determination Theory and practical implications for developing AI-driven, student-centered mental health interventions. Future research should address ethical concerns in AI implementation and explore culturally sensitive

International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021

approaches to promoting mental wellbeing in diverse online learning environments.

Keywords:

Digital Classroom, Mental Wellbeing, Online Higher Education, Artificial Intelligence (AI) In Education and Student Engagement and Inclusion

Introduction

The digital transformation in higher education has accelerated rapidly in recent years, driven by technological innovations and significantly intensified by the COVID-19 pandemic (Oztosun et al., 2023; Afshar Jahanshahi & Polas, 2023). Online teaching and learning (OTL), once a supplementary method, has now become a central mode of delivery for many institutions. While virtual learning environments provide increased flexibility and accessibility, they also present new psychological and emotional challenges for both students and educators (Made et al., 2025).

Research increasingly reveals that student in online higher education settings experience heightened levels of psychological distress, including anxiety, depression, and a sense of isolation (Hamamra et al., 2024; Sava, 2023). These challenges are often worsened by external stressors such as financial hardship, reduced motivation, and health concerns (Lai et al., 2021; Dinu et al., 2022). Similarly, educators face rising demands, digital fatigue, and a need to adapt quickly to evolving technological tools, all of which impact their mental wellbeing (Alias et al., 2022).

Several studies have attempted to identify factors influencing mental wellbeing in digital education, with digital literacy and socio-emotional engagement emerging as key enablers of positive outcomes (Dinu et al., 2022). Students with strong digital skills and stable home learning environments tend to exhibit greater resilience and reduced stress (Made et al., 2025), while those lacking technical support or dealing with unstable internet connections often report disengagement and frustration (Hamamra et al., 2024).

Despite the growing body of literature, critical gaps remain. Much of the existing research has focused on short-term impacts during the pandemic, with limited attention to long-term effects or holistic interventions (Apolinário-Hagen et al., 2018). Furthermore, there is a lack of integrative reviews that utilize advanced tools such as artificial intelligence (AI) to map the research landscape and uncover emerging trends.

This paper addresses these gaps by conducting a Scopus-based, AI-assisted review of mental wellbeing in online higher education. By analyzing current research patterns, constructing concept maps, and incorporating expert insights, this study offers a comprehensive synthesis of existing knowledge. The review also identifies promising directions for future research and practical strategies to support mental wellbeing in digital learning environments.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021

Methodology

This study employed an **AI-augmented systematic literature review approach** to investigate the mental wellbeing landscape in online higher education. The review was conducted using **Scopus AI** during a dedicated trial period from 3rd to 18th March 2025. Scopus AI, an advanced tool integrated with the Scopus database, enabled the automated extraction and synthesis of key research trends, expert contributions, conceptual relationships, and emerging themes. This AI-enhanced process complemented traditional systematic review procedures (such as PRISMA guidelines and bibliometric analysis) to provide greater analytical depth, transparency, and efficiency, thereby strengthening the validity and comprehensiveness of the findings.

The review process comprised four main stages:
(1) **Search and Screening:** A carefully constructed Boolean query was used to capture the multidimensional scope of the topic. Keywords targeted aspects of mental wellbeing (e.g., "mental health", "psychological wellbeing") in relation to online education (e.g., "e-learning", "distance learning") within higher education contexts. Additional filters included terms related to student support, engagement, and performance. The search was restricted to English-language publications between 2018 and 2025 to reflect both pre- and post-pandemic trends, resulting in an initial dataset of 389 peer-reviewed articles, conference proceedings, and book chapters.
(2) **Data Extraction and Filtering:** Sources unrelated to higher education or lacking empirical evidence were excluded through both automated and manual screening to ensure relevance and data quality.
(3) **AI-Assisted Analysis:** The refined dataset was analyzed using key features of Scopus AI — *Summary*, *Expanded Summary*, *Concept Map*, *Topic Experts*, and *Emerging Themes*. These tools automatically identified and visualized dominant research areas, clusters, and thematic linkages.
(4) **Manual Validation and Narrative Synthesis:** The AI-generated outputs were reviewed and interpreted by researchers to ensure contextual accuracy, followed by a structured narrative synthesis integrating both quantitative (e.g., publication trends, citation analysis) and qualitative (e.g., conceptual relationships, expert insights) findings.

The final search string used was as follows:
("mental wellbeing" OR "mental health" OR "psychological wellbeing" OR "emotional health") AND ("online education" OR "e-learning" OR "distance learning" OR "virtual learning") AND ("higher education" OR "university" OR "college" OR "tertiary education") AND ("student support" OR "wellbeing programs" OR "counseling" OR "stress management") AND ("engagement" OR "motivation" OR "satisfaction" OR "performance").

Through this AI-driven and systematically validated analysis, dominant research themes such as psychological distress, digital literacy, and institutional support systems were identified. The Concept Map visualised relationships among core constructs, clustering findings into four key areas: mental health challenges, institutional interventions, digital engagement, and academic motivation. The *Topic Experts* feature identified leading contributors in the field, while the *Emerging Themes* function highlighted novel directions such as AI-driven stress management, social presence, and personalised e-mental health applications.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021

These results were then synthesised into a comprehensive narrative review, aligning AI-based insights with human interpretation to enhance credibility and depth. Emphasis was placed on methodological transparency, allowing for reproducibility and comparison with previous systematic reviews (e.g., Kokol et al., 2023; Ahmad et al., 2024). This integrated approach provided a robust and holistic examination of the mental wellbeing discourse in online higher education.

Finally, the Emerging Themes function identified novel areas of inquiry such as the integration of personalized e-mental health applications, the role of AI-driven interventions in stress management, and the increasing significance of social presence in online learning environments (Apolinário-Hagen et al., 2018; Alias et al., 2022). These themes point towards future research directions that can inform policy and practice in higher education.

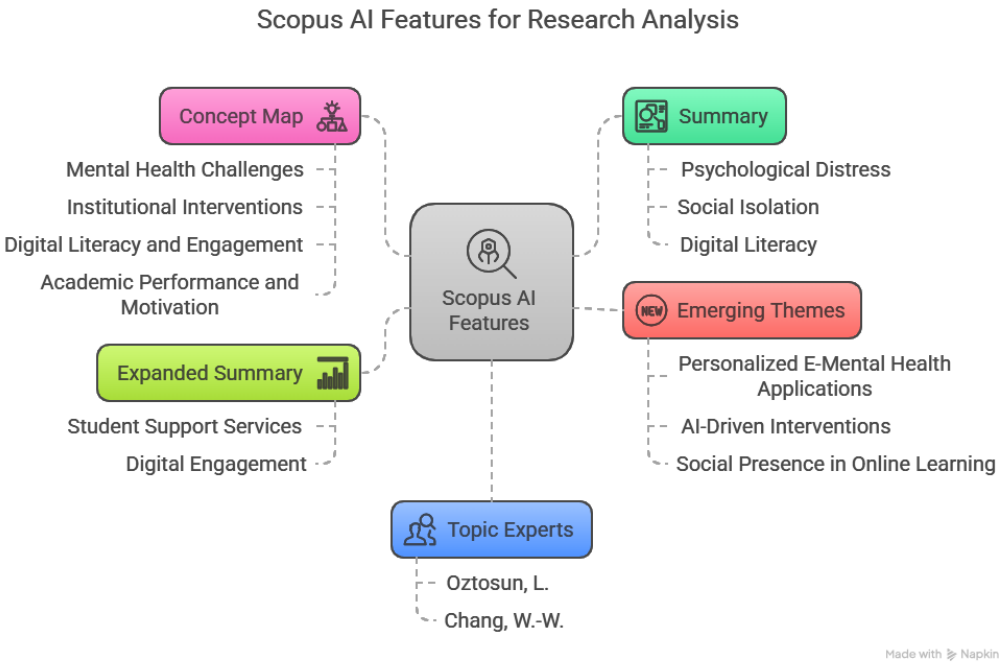

Figure 1: Scopus AI Features for Research Analysis

The findings from the Scopus AI analysis were systematically synthesized to provide a comprehensive narrative review. Emphasis was placed on critical themes, methodological trends, and identified research gaps. The synthesis integrates both quantitative data (publication trends, citation analysis) and qualitative insights (concept mapping, expert opinions), offering a robust and holistic examination of the literature.

Result and Discussion

This review employed Scopus AI-assisted analytics to systematically examine the landscape of mental wellbeing in online higher education. Through an integrated analysis of the Summary, Expanded Summary, Concept Map, and Topic Experts and Emerging Themes functions within the Scopus AI platform, several significant insights emerged regarding the psychological challenges, interventions, and future directions within this research domain.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021

Summary and Expanded Summary Findings

The Scopus AI-generated Summary and Expanded Summary revealed a consistent narrative highlighting increased psychological distress among students in online higher education, largely triggered by the abrupt transition during the COVID-19 pandemic. Stress, anxiety, and depression were frequently reported, with contributing factors such as financial instability, reduced motivation, and health-related concerns (Oztosun et al., 2023; Chang et al., 2021; Lai et al., 2021; Hamamra et al., 2024). Psychological strain was notably associated with diminished academic engagement, motivation, and performance (Chung et al., 2022).

Despite these challenges, studies indicated that well-structured online learning could enhance metacognitive skills and academic outcomes (Made et al., 2025). Students with strong digital literacy and supportive learning environments exhibited greater resilience and lower stress levels (Dinu et al., 2022), whereas those facing digital barriers reported frustration and disengagement (Hamamra et al., 2024). Social isolation emerged as a key determinant of poor mental wellbeing, with the absence of physical interaction reducing students' sense of belonging (Sava, 2023). This underscores the importance of fostering socio-emotional engagement to support mental health in virtual learning contexts (Oztosun et al., 2023).

Table 1: Summary of Key Studies on Mental Wellbeing in Online Higher Education (2018–2025)

Authors	Year	Title	Source title	Cited by
Chang W.-W.; Shi L.-X.; Zhang L.; Jin Y.-L.; Yu J.-G.	2021	The Mental Health Status and Associated Factors Among Medical Students Engaged in Online Learning at Home During the Pandemic: A Cross-Sectional Study From China	Frontiers in Psychiatry	24
Chung J.; Mundy M.E.; Hunt I.; Coxon A.; Dyer K.R.; McKenzie S.	2021	An Evaluation of an Online Brief Mindfulness-Based Intervention in Higher Education: A Pilot Conducted at an Australian University and a British University	Frontiers in Psychology	14
Lai C.-S.; Au K.-M.; Low C.-S.	2021	Beyond conventional classroom learning: Linking emotions and self-efficacy to academic achievement and satisfaction with online learning during the COVID-19 pandemic	Journal of Education and e-Learning Research	14
Dinu L.M.; Byrom N.C.; Mehta K.J.; Everett S.; Foster J.L.H.; Dommett E.J.	2022	Predicting student mental wellbeing and loneliness and the importance of digital skills	Journal of Further and Higher Education	10

International Journal of Modern Education
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021

Apolinário-Hagen J.; Groenewold S.D.; Fritsche L.; Kemper J.; Krings L.; Salewski C.	2018	Strengthening the health of distance-learning students: The GFS project at the Distance University of Hagen: from the health survey to the implementation of e-mental health programs and m-mental health apps; [Die Gesundheit Fernstudierender stärken: Das GFS-Projekt an der FernUniversität in Hagen: Vom Gesundheitssurvey zur Implementierung von gesundheitsfördernden eHealth-Programmen und mHealth-Apps]	Pravention und Gesundheitsforderung	9
Saeidnia H.R.; Hashemi Fotami S.G.; Lund B.; Ghiasi N.	2024	Ethical Considerations in Artificial Intelligence Interventions for Mental Health and Well-Being: Ensuring Responsible Implementation and Impact	Social Sciences	8
Afshar Jahanshahi A.; Polas M.R.H.	2023	Moving toward Digital Transformation by Force: Students' Preferences, Happiness, and Mental Health	Electronics (Switzerland)	6
Alias N.F.; Mustafa S.M.S.; Hamzah L.M.	2022	Online Counselling Reach Out Services to Alleviate Stress among Students during Online Distance Learning	Asian Journal of University Education	6
Oztosun L.; Gonzo F.; Nadda V.	2023	The impact of digital learning technology on higher education students' mental health	Perspectives on Enhancing Learning Experience Through Digital Strategy in Higher Education	2
Basu S.; Thomas S.; Khan T.	2022	Impact of Digital Education on Learning Behavior of Undergraduates	Journal of Higher Education Theory and Practice	0
Chung J.; McKenzie S.P.; Mundy M.E.	2022	Recommendations for student success and student wellbeing in modern higher education	The Future of Online Education	0
Elkhodr M.; Gide E.; Pandey N.	2024	Enhancing mental health support for international students: A digital framework for holistic well-being in higher education	STEM Education	0
Hamamra B.; Daragmeh A.; Jabali O.;	2024	Online Education and Its Impact on University Students' Mental Health in the West Bank and Gaza Strip: A Cross-Sectional	An-Najah University Journal for Research - B (Humanities)	0

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021

Veronese G.; Mahamid F.		Study; [وتأثيره في التعليم عبر الإنترنت الصحة النفسية لطلاب الجامعات في الضفة مقطعية الغربية وقطاع غزة: دراسة]		
Khan A.; Siddiqui M.A.	2024	Evaluation of Emotional Intelligence for Academic Stress Analysis	8th International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud), I-SMAC 2024 - Proceedings	0
Made A.M.; Syahril; Waskito; Ranuharja F.; Riyanda A.R.; Sagala M.K.; Rinaldi D.; Hakim U.; Oluwaseyi J.; Torres-Toukoumidis A.	2025	Online Learning Technology: Implications on Mental Health and Learning Outcomes of Students; [Tecnología de Aprendizaje en Línea: Implicaciones en la Salud Mental y los Resultados de Aprendizaje de los Estudiantes]	Salud, Ciencia y Tecnologia	0
Sava I.N.	2023	Social value of pathology: adapting primary health care to reduce stress and social anxiety in college students exposed to social distancing	Frontiers in Psychology	0
Van N.T.; Daril M.A.M.; Ali M.; Korejo M.S.	2024	Enhancing Psychological Well-being in Higher Education Post-Covid-19 Pandemic. The Role of AI-Based Support Systems—Bibliometric Reviews	International journal of online and biomedical engineering	0

Source: Scopus AI

Table 1 summarises key studies on mental wellbeing in online higher education from 2018 to 2025. The most cited is Chang et al. (2021), examining mental health issues among medical students, followed by studies on mindfulness (Chung et al., 2021) and self-efficacy in online learning (Lai et al., 2021). Recent works highlight digital literacy, ethical AI use, and personalised support systems (Dinu et al., 2022; Saeidnia et al., 2024). Though newer studies like Van et al. (2024) and Made et al. (2025) lack citations, they spotlight emerging AI-driven wellbeing themes. Collectively, the literature reflects the complex interplay between digital learning and mental wellbeing, calling for integrated technological and psychological strategies in higher education.

Concept Map Analysis

The Scopus AI-generated Concept Map identified four key thematic clusters in the literature on mental wellbeing in online higher education: psychological distress, institutional support, digital literacy, and academic outcomes. It revealed the widespread presence of stress, anxiety,

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021
and depression among students (Chang et al., 2021), the importance of support services like counselling and flexible learning (Alias et al., 2022; Afshar Jahanshahi & Polas, 2023), and the role of digital literacy in enhancing engagement and reducing stress (Made et al., 2025). The map also highlighted the strong link between mental wellbeing and academic performance, stressing the need for integrated support to sustain motivation and retention in online learning (Chung et al., 2022).

Topic Experts and Emerging Themes

Scopus AI's Topic Experts feature highlighted key contributors in the field, including Oztosun et al. (2023) for their work on digital learning's impact on mental health, and Chang et al. (2021) for research on the psychological wellbeing of medical students during online learning. These experts have shaped current perspectives on the challenges and potential of online teaching and learning in higher education. The Emerging Themes analysis pointed to growing interest in AI-powered mental health tools offering real-time, personalised support for issues like academic stress, social isolation, and financial strain (Van et al., 2024; Khan & Siddiqui, 2024; Elkhodr et al., 2024).

Despite their potential, AI-assisted interventions raise ethical and privacy concerns, including data security, informed consent, and fairness (Saeidnia et al., 2024). Ensuring ethical deployment is essential for their success and acceptance. Additionally, sustaining student engagement remains a challenge, with effectiveness dependent on trust and consistent use (Chung et al., 2021). Culturally sensitive approaches are also needed to address the diverse mental health needs of global student populations (Apolinário-Hagen et al., 2018).

Synthesis and Implications for Higher Education

This Scopus AI-assisted review highlights the multifaceted challenges of mental wellbeing in online higher education. While digital learning offers flexibility and personalisation, it also introduces psychological risks that require strong institutional support. Universities must prioritise mental health through comprehensive services, digital literacy initiatives, and ethically guided AI interventions. Enhancing social presence in virtual classrooms is vital to reduce isolation and promote engagement (Dinu et al., 2022). Future research should examine the long-term impact of AI-driven wellbeing tools across diverse educational contexts.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021

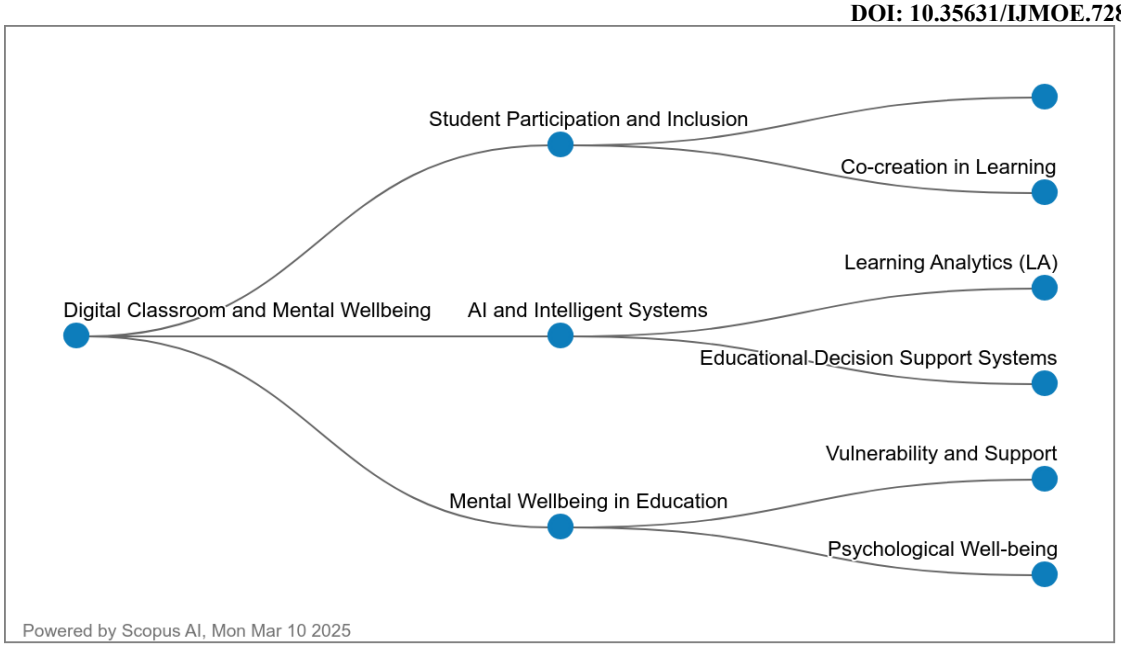

Figure 2: Concept Map on Digital Classrooms and Mental Wellbeing in Higher Education

Concept Map

Figure 2 presents a concept map generated through Scopus AI on March 10, 2025, as part of this review's data analysis process. The concept map provides a visual representation of the key thematic clusters and conceptual relationships identified in the literature on digital classrooms and mental wellbeing in higher education. The use of Scopus AI allowed for the extraction and mapping of interconnected themes, offering an intuitive understanding of the current research landscape and its emerging priorities. At the core of the concept map is the primary research domain, labeled *Digital Classroom and Mental Wellbeing*. From this central node, three main thematic branches extend, each representing a critical area of focus derived from the AI-assisted analysis. The concept map offers a structured view of the interconnected factors shaping mental wellbeing in online education, highlighting current focus areas like AI-driven learning analytics and co-creation, while also pointing to emerging priorities such as personalised support for vulnerable students and ethical AI use. It underscores the complex, multidisciplinary nature of mental wellbeing in digital classrooms and calls for a holistic approach that balances technological innovation with ethical practices and inclusive learning environments.

Digital Classroom And Mental Wellbeing

The rise of digital classrooms in higher education presents both opportunities and challenges for student mental wellbeing. On the positive side, online learning offers flexibility, reduced academic pressure, and greater access to support services. Features like gamification, interactive tools, and virtual counselling enhance engagement and promote inclusivity by allowing students to learn at their own pace and connect with support networks (Taylor, 2018; Basu et al., 2022). However, digital education also introduces risks. Prolonged screen time, social isolation, and digital fatigue have been linked to stress, anxiety, and emotional exhaustion (Raj and Irudhayamary, 2024). Without adequate balance, virtual learning can lead to digital addiction and hinder interpersonal connection (Dehghan et al., 2024). To mitigate these effects, institutions should promote healthy tech use, integrate mental health literacy, and adopt hybrid models with built-in breaks and mindfulness practices (Kankaanranta et al., 2021).

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021

Ethical concerns also arise with AI-driven monitoring tools. While these technologies help identify at-risk students, they raise issues of privacy, consent, and data security (Saeidnia et al., 2024). Ensuring ethical practices and student trust is vital for responsible AI use. A holistic approach that balances innovation with mental health safeguards is essential to create sustainable digital learning environments.

Recent research highlights the importance of digital technologies in promoting student wellbeing and inclusion in educational settings. Digital teaching offers advantages for students with disabilities, though some platforms remain inaccessible (Wilkens et al., 2021). Participatory approaches involving students in designing digital resources for mental wellbeing have shown promise, as demonstrated by projects like the "Wellbeing Pedagogies Library" and "Mental Well-being in Distance Learning" (Lister et al., 2022). The SELFIE tool, based on the DigCompOrg framework, helps schools self-reflect on integrating digital technologies and supporting student wellbeing and inclusion (Panesi et al., 2020). However, perceptions of wellbeing and inclusion differ among students, teachers, and school leaders, emphasizing the need for coordinated actions involving the whole school community (Panesi et al., 2020). These findings underscore the potential of digital technologies to enhance education and foster student wellbeing, while also highlighting the importance of accessibility and collaborative approaches in implementation.

Relationship Between Digital Classroom, Mental Wellbeing, and AI & Intelligent Systems

The integration of AI in digital classrooms has transformed higher education, offering personalized learning experiences and enhanced accessibility (Suntharalingam, 2024; Zhu, 2024). While AI-powered systems can improve academic performance and provide mental health support, they also present challenges related to student wellbeing (Velastegui-Hernández et al., n.d.). AI-assisted teaching has shown positive impacts on learning outcomes and psychological health through personalized experiences and timely emotional support (Zhu, 2024). However, concerns persist regarding information overload, lack of human interaction, and potential stress and anxiety (Velastegui-Hernández et al., n.d.). AI-powered Educational Decision Support Systems (AI-EDSS) raise ethical concerns about fairness and transparency, particularly for vulnerable student populations (Prinsloo et al., 2024). To maximize the benefits of AI in education, institutions must address challenges such as technological limitations, privacy concerns, and the need for educator training (Zhu, 2024), while prioritizing fairness, accountability, and transparency in AI deployment (Prinsloo et al., 2024).

While AI-driven systems can offer personalized learning pathways that support academic achievement and student engagement, their influence on psychological wellbeing is more complex. AI has been shown to support students by reducing cognitive overload through adaptive learning and providing mental health resources via AI chatbots and virtual assistants (Velastegui-Hernandez et al., 2023). These systems can create a more supportive environment for students by identifying learning difficulties early and delivering interventions tailored to individual needs. On the other hand, the increased reliance on AI and the potential for information overload may contribute to student stress and anxiety, particularly when AI systems replace meaningful human interactions in the educational process (Velastegui-Hernandez et al., 2023). Students may feel isolated or overwhelmed by automated systems that lack emotional sensitivity, ultimately undermining their mental wellbeing.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021

AI-powered Educational Decision Support Systems (AI-EDSS) are another emerging innovation in digital classrooms that aim to optimize learning outcomes by using data analytics to guide academic decisions (Prinsloo et al., 2024). However, these systems raise ethical concerns, especially regarding fairness, equity, and transparency. Vulnerable and previously disadvantaged student populations may be disproportionately affected by AI algorithms that inadvertently reinforce bias or exclude them from equitable learning opportunities (Prinsloo et al., 2024). Safeguarding the digital wellbeing of these students requires robust frameworks that prioritize accountability, inclusivity, and transparency in AI deployment. Failure to address these issues can lead to digital exclusion, heightening stress and mental health challenges for marginalized groups.

In conclusion, the relationship between digital classrooms, mental wellbeing, and AI & intelligent systems is complicated. AI technologies offer transformative potential for enhancing learning personalization, providing mental health support, and improving accessibility. Yet, these benefits are counterbalanced by significant challenges related to mental health risks, ethical concerns, and digital inclusion. To maximize the positive impact of AI in education, higher education institutions must adopt holistic policies that balance technological innovation with the safeguarding of students' psychological wellbeing. Future research should continue exploring the long-term mental health impacts of AI-powered education and establish ethical guidelines for responsible AI deployment in digital classrooms (Prinsloo et al., 2024; Velasteguí-Hernandez et al., 2023).

Relationship Between Digital Classroom, Mental Wellbeing, and Mental Wellbeing in Education

Integrating mental wellbeing into higher education has become a growing priority, especially with the shift toward digital learning. Institutions are increasingly embedding mental health support into teaching, learning, and curriculum design, recognising that wellbeing should not be limited to counselling services alone (Lister et al., 2024). When integrated effectively, digital classrooms can create supportive environments that enhance both academic performance and psychological health.

While digital technology expands access and flexibility—especially for marginalized students—it also presents challenges to mental wellbeing. The rapid transition to online learning during the COVID-19 pandemic has exposed students to digital fatigue, isolation, and stress (Oztosun et al., 2023). Although well-designed digital platforms can boost autonomy and engagement, their benefits depend on thoughtful implementation and balanced use.

Participatory and student-centred approaches have emerged as effective in promoting mental wellbeing in digital education. Initiatives that involve students in co-creating digital tools and wellbeing strategies help foster a sense of belonging and resilience (Lister et al., 2022). However, challenges such as cyberbullying, exclusion, and burnout persist, underscoring the need for clear institutional guidelines and ongoing evaluation. A holistic and inclusive approach is essential to ensure that digital education supports long-term psychological wellbeing across diverse learner populations.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021

Topic Experts

Recent research on mental wellbeing in online higher education has been significantly advanced by the contributions of Sandra Guadalupe Garcia Aburto, Roberto Angel Melendez Armenta, and Giovanni Luna Chontal. Their collaborative work explores the intersection of digital classrooms, mental health, and machine learning, particularly during the COVID-19 pandemic (Melendez-Armenta et al., 2024). Together, they offer innovative insights into the psychological challenges faced by university students engaged in distance learning.

Aburto, an emerging researcher, focuses on applying machine learning techniques to identify mental health issues among students in digital education. Her work combines educational technology with psychological wellbeing frameworks, emphasising the value of interdisciplinary approaches to improve student support systems (Melendez-Armenta et al., 2024). Her studies advocate for data-driven mental health assessments that are sensitive to students' experiences in virtual learning environments.

Melendez Armenta, a well-established scholar, has significantly contributed to the use of AI in mental health analytics within online education. His research demonstrates how machine learning models can assess stress, anxiety, and depression, while also raising concerns about ethical practices, data privacy, and equitable access (Melendez-Armenta et al., 2024). He highlights the potential of AI-powered educational decision support systems (AI-EDSS) in identifying at-risk students and facilitating timely interventions.

Chontal, as a rising scholar, brings a student-centred lens to the conversation. His work emphasises the psychological effects of prolonged online learning and supports co-creating AI-based wellbeing tools with student input. Collectively, their research highlights both the promise and complexity of integrating AI in mental health strategies, stressing the need for ethical, transparent, and inclusive approaches to ensure digital education remains supportive and equitable.

Emerging Themes

The COVID-19 pandemic significantly affected the mental wellbeing of students in online higher education. The sudden shift to digital learning led to increased stress, anxiety, depression, and reduced motivation due to screen fatigue, social isolation, and cognitive overload (Oztosun et al., 2023; Chang et al., 2021; Melendez-Armenta et al., 2024). However, digital tools like interactive platforms and virtual communities helped mitigate these effects by fostering connection and supporting mental health (Basu et al., 2022).

Institutional Support and Mental Health in Higher Education (Consistent Theme)

Institutional support is crucial for student mental health. Policies such as online counseling, flexible academics, and inclusive environments improve wellbeing (Lister et al., 2024). Holistic support services enhance student satisfaction, performance, and mental health (Alias et al., 2022). Additionally, virtual classroom design and peer interaction significantly shape psychological experiences (Prinsloo et al., 2024). These findings highlight the importance of supportive policies and digital environments in promoting student wellbeing.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021

Innovative Approaches to Student Wellbeing in Higher Education (Rising Theme)

Recent studies highlight innovative ways to support student wellbeing through positive psychology, digital tools, and AI. Interventions like gratitude exercises and mindfulness boost resilience and mental health (Lister et al., 2022). AI chatbots and mobile apps offer personalized support, helping universities reach more students effectively (Velastegui-Hernandez et al., 2023). These advances signal a shift toward proactive, scalable, and tech-driven wellbeing solutions.

Motivation and Engagement in Online Learning (Rising Theme)

Recent studies highlight the importance of motivation and engagement in online learning. Motivation boosts self-efficacy, self-monitoring, and engagement, with digital skills and self-directed learning playing key roles (Alemayehu & Chen, 2021; Ojo et al., 2024). Engagement is shaped by cognitive, emotional, and behavioral factors, as well as interaction, presence, and community (Martin & Borup, 2022). To improve engagement, educators should simplify content, encourage interaction, and support self-regulation. Inclusive and diverse strategies are also recommended by both students and teachers (Bedi, 2023). Understanding these factors is vital for effective digital learning.

Emotional Support in Online Learning Environments (Novel Theme)

Emotional support is increasingly recognized as vital in online learning. Support from peers, instructors, and virtual communities enhances belonging and reduces isolation (Kankaanranta et al., 2021). Proactive traits like self-initiation and resilience boost motivation and positive emotions (Lister et al., 2024). Together, emotional support and proactive behaviours improve engagement, academic outcomes, and mental wellbeing.

Conclusion

This Scopus AI-assisted review critically examined the interplay between digital classrooms, mental wellbeing, and student engagement in online higher education. Findings reveal that while digital technologies have enhanced accessibility, flexibility, and inclusivity, they have simultaneously introduced significant psychological challenges, intensified by the COVID-19 pandemic. The review underscores the essential role of institutional support and highlights innovative strategies—such as positive psychology frameworks and AI-driven mental health interventions—in promoting student wellbeing and participation. Emerging themes emphasize the importance of emotional support, proactive personality traits, and social engagement in fostering resilience within digital learning environments.

Theoretically, this study extends the application of Self-Determination Theory (SDT) and the Technology Acceptance Model (TAM) by demonstrating the intertwined relationship between digital engagement and psychological health. Practically, it offers actionable recommendations for higher education institutions, including integrating mental wellbeing strategies into digital design, enhancing digital inclusion, and deploying AI-powered support services. Acknowledging limitations such as database scope and the rapid pace of technological change, the review advocates for future longitudinal and cross-cultural studies, a deeper examination of ethical concerns in AI-driven mental health monitoring, and the co-design of wellbeing tools that are student-centered and culturally responsive.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021

Acknowledgements

The authors would like to express their sincere gratitude to the Kedah State Research Committee, UiTM Kedah Branch, for the generous funding provided under the *Tabung Penyelidikan Am*. This support was crucial in facilitating the research and ensuring the successful publication of this article.

References

Afshar Jahanshahi, A., & Polas, M. R. H. (2023). Moving toward digital transformation by force: Students' preferences, happiness, and mental health. *Electronics (Switzerland)*, *12* (10), Article 2187. https://doi.org/10.3390/electronics12102187

Alemayehu, L., & Chen, H. L. (2023). The influence of motivation on learning engagement: The mediating role of learning self-efficacy and self-monitoring in online learning environments. *Interactive Learning Environments*, *31*(7), 4605-4618. https://doi.org/10.1080/10494820.2021.2007789

Alias, N. F., Mustafa, S. M. S., & Hamzah, L. M. (2022). Online counselling reach out services to alleviate stress among students during online distance learning. *Asian Journal of University Education*. https://doi.org/10.56249/AJUE.V17I1.1565

Apolinário-Hagen, J., Groenewold, S. D., Fritsche, L., Kemper, J., Krings, L., & Salewski, C. (2018). Strengthening the health of distance-learning students: The GFS project at the Distance University of Hagen: From the health survey to the implementation of e-health programs and m-health apps. *Prävention und Gesundheitsförderung*, *13* (Suppl 1), 151–158. https://doi.org/10.1007/s10389-017-0847-y

Basu, S., Thomas, S., & Khan, T. (2022). Impact of Digital Education on Learning Behavior of Undergraduates. *Journal of Higher Education Theory and Practice*, *22* (11), 166–178.

Bedi, A. (2023). Keep learning: Student engagement in an online environment. *Online Learning, 27*(2), 190–206. https://doi.org/10.24059/olj.v27i2.3602

Chang, W. W., Shi, L. X., Zhang, L., Jin, Y. L., & Yu, J. G. (2021). The mental health status and associated factors among medical students engaged in online learning at home during the pandemic: A cross-sectional study from China. *Frontiers in Psychiatry*, *12*, 755503. https://doi.org/10.3389/fpsyt.2021.755503

Chung, J., McKenzie, S. P., & Mundy, M. E. (2022). Recommendations for student success and student wellbeing in modern higher education. In *The Future of Online Education* (pp. 265–286). Academic Press.

Chung, J., Mundy, M. E., Hunt, I., Coxon, A., Dyer, K. R., & McKenzie, S. (2021). An evaluation of an online brief mindfulness-based intervention in higher education: A pilot conducted at an Australian university and a British university. *Frontiers in Psychology*, *12*, Article 752060. https://doi.org/10.3389/fpsyg.2021.752060

Dehghan, S., Hajiha, Z., & Salehi, M. (2024). The effect of using information technology on corporate resilience in the face of tension-causing factors within companies. *Competitiveness Review: An International Business Journal*. Advance online publication. https://doi.org/10.1108/CR-01-2024-0012

Dinu, L. M., Byrom, N. C., Mehta, K. J., Everett, S., Foster, J. L. H., & Dommett, E. J. (2022). Predicting student mental wellbeing and loneliness and the importance of digital skills. *Journal of Further and Higher Education*, *46* (8), 1040–1053. https://doi.org/10.1080/0309877X.2022.2038780

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021
Elkhodr, M., Gide, E., & Pandey, N. (2024). Enhancing mental health support for international students: A digital framework for holistic well-being in higher education. *STEM Education*, *4* (4), 466–488. https://doi.org/10.3934/steme.2024025

Hamamra, B., Daragmeh, A., Jabali, O., Veronese, G., & Mahamid, F. (2024). Online education and its impact on university students' mental health in the West Bank and Gaza Strip: A cross-sectional study. *An-Najah University Journal for Research - B (Humanities)*, *38* (10), 2029–2056. https://doi.org/10.35552/0247.38.10.2282

Kankaanranta, M., Mehtälä, S., Hankala, M., & Rousi, R. (2021). Children's conceptions of mental well-being and ideas for its promotion through digital environments. *International Journal of Child-Computer Interaction*, *29*, 100212. https://doi.org/10.1016/j.ijcci.2021.100212

Khan, A., & Siddiqui, M. A. (2024). Evaluation of emotional intelligence for academic stress analysis. In *Proceedings of the 2024 8th International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC)* (pp. 997–1002). IEEE. https://doi.org/10.1109/I-SMAC61858.2024.10714777

Lai, C.-S., Au, K.-M., & Low, C.-S. (2021). Beyond conventional classroom learning: Linking emotions and self-efficacy to academic achievement and satisfaction with online learning during the COVID-19 pandemic. *Journal of Education and e-Learning Research*, *8* (4), 367–374. https://doi.org/10.20448/JOURNAL.509.2021.84.367.374

Lister, K., Riva, E., Hartley, A., Waterhouse, P., Moller, N., Downes, L., Coughlan, T., Kukulska-Hulme, A., McPherson, E., Macdonald, I., Jones-Tinsley, S., Brown, C., & Tudor, R. (2024). Positive digital practices: Supporting positive learner identities and student mental wellbeing in technology-enhanced higher education. *Journal of Interactive Media in Education*, *2024* (1), Article 5. https://doi.org/10.5334/jime.831

Lister, K., Riva, E., Kukulska-Hulme, A., & Fox, C. (2022). Participatory digital approaches to embedding student wellbeing in higher education. *Frontiers in Education*, *7*, Article 924868. https://doi.org/10.3389/feduc.2022.924868

Made, A. M., Syahril, Waskito, Ranuharja, F., Riyanda, A. R., Sagala, M. K., Rinaldi, D., Hakim, U., Oluwaseyi, J., & Torres-Toukoumidis, A. (2025). Online learning technology: Implications on mental health and learning outcomes of students [Tecnología de aprendizaje en línea: Implicaciones en la salud mental y los resultados de aprendizaje de los estudiantes]. *Salud, Ciencia y Tecnologia*, *5*, Article 1309. https://doi.org/10.56294/saludcyt20251309

Martin, F., & Borup, J. (2022). Online learner engagement: Conceptual definitions, research themes, and supportive practices. *Educational Psychology, 42*(7), 790–808. https://doi.org/10.1080/01443410.2022.2047067

Melendez-Armenta, R. A., Chontal, G. L., & Aburto, S. G. G. (2024). Using machine learning to analyze mental health in distance education during the COVID-19 pandemic: An opinion study from university students in Mexico. *PeerJ Computer Science*, *10*, e2241. https://doi.org/10.7717/peerj-cs.2241

Ojo, A. O., Ravichander, S., Tan, C., Anthonysamy, L., & Arasanmi, C. (2024). Investigating student's motivation and online learning engagement through the lens of self-determination theory. *Journal of Applied Research in Higher Education*. Advance online publication. https://doi.org/10.1108/JARHE-06-2023-0215

Oztosun, L., Gonzo, F., & Nadda, V. (2023). The impact of digital learning technology on higher education students' mental health. In *Perspectives on Enhancing Learning Experience Through Digital Strategy in Higher Education* (pp. 92–109). IGI Global. https://doi.org/10.4018/978-1-6684-8282-7.ch005

International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume 7 Issue 28 (December 2025) PP. 265-280
DOI: 10.35631/IJMOE.728021
Panesi, S., Bocconi, S., & Ferlino, L. (2020). Promoting students' well-being and inclusion in schools through digital technologies: Perceptions of students, teachers, and school leaders in Italy expressed through SELFIE piloting activities. *Frontiers in Psychology, 11*, 1563. https://doi.org/10.3389/fpsyg.2020.576049

Prinsloo, P., Khalil, M., & Slade, S. (2024). Vulnerable student digital well-being in AI-powered educational decision support systems (AI-EDSS) in higher education. *British Journal of Educational Technology, 55*(1), 45–62. https://doi.org/10.1111/bjet.13358

Raj, A. S., & Irudhayamary. (2024). Level of stress among school teachers: An analytical study. *International Journal of Educational Research and Development*, *15* (2), 51–60. https://doi.org/10.30954/2230-7311.2.2024.2

Saeidnia, H. R., Hashemi Fotami, S. G., Lund, B., & Ghiasi, N. (2024). Ethical considerations in artificial intelligence interventions for mental health and well-being: Ensuring responsible implementation and impact. *Social Sciences*, *13* (7), Article 381. https://doi.org/10.3390/socsci13070381

Sava, I. N. (2023). Social value of pathology: Adapting primary health care to reduce stress and social anxiety in college students exposed to social distancing. *Frontiers in Psychology*, *14*, Article 1143221. https://doi.org/10.3389/fpsyg.2023.1143221

Suntharalingam, H. (2024). Enhancing digital learning outcomes through the application of artificial intelligence: A comprehensive review. *International Journal of Innovative Science and Research Technology, 9*(1), 1685–1691.

Taylor, A. (2018). A review of apps and websites for promoting mental wellbeing: Findings and initial recommendations for design. In *Proceedings of the 32nd International BCS Human Computer Interaction Conference, HCI 2018*. Electronic Workshops in Computing (eWiC). https://doi.org/10.14236/ewic/HCI2018.12

Van, N. T., Daril, M. A. M., Ali, M., & Korejo, M. S. (2024). Enhancing psychological well-being in higher education post-COVID-19 pandemic: The role of AI-based support systems—Bibliometric reviews. *International Journal of Online and Biomedical Engineering*, *20* (6), 139–152. https://doi.org/10.3991/ijoe.v20i06.48001

Velastegui, D., Pérez, M. L. R., & Garcés, L. F. S. (2023). Impact of Artificial Intelligence on learning behaviors and psychological well-being of college students. *Salud, Ciencia y Tecnologia-Serie de Conferencias*, (2), 343.

Wilkens, L., Haage, A., Lüttmann, F., & Bühler, C. (2021). Digital teaching, inclusion and students' needs: Student perspectives on participation and access in higher education. *Social Inclusion, 9*(3), 184–194. https://doi.org/10.17645/si.v9i3.4277

Zhu, Y. (2024). The impact of AI-assisted teaching on students' learning and psychology. *Journal of Education, Humanities and Social Sciences, 28*, 343–348.