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Digital Competence in Higher Education in Southeast Asia: A Bibliometric Analysis From 2017 to 2026

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Abstract

In the context of uneven digital transformation among Southeast Asian countries, this study provides a comprehensive overview of digital competence in higher education during the 2017–2026 period using a bibliometric approach. The dataset comprises 676 documents from the Scopus database, processed using VOSviewer and Microsoft Excel. The results indicate a sharp increase in publications from 2024 to 2026, predominantly in Indonesia, Malaysia, and Thailand. The keyword co-occurrence map identifies six main thematic clusters, reflecting research interests in artificial intelligence applications, digital competence in curricula, personal factors in technology use, employment and human resource development, digital transformation, entrepreneurship education, and sustainable development. The findings reveal a research gap in explaining the disparities in publications and research collaboration among these countries, as well as in clarifying the relationship between digital competence, responsible artificial intelligence, and sustainable development. Future studies should focus on the role of policies, institutional resources, and the nexus of digital competence and entrepreneurship education with sustainable development goals.

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Keywords: Digital competence, Higher education, Southeast Asia, Bibliometric analysis, Research collaboration, Research trends

Introduction

Currently, the development of information technology and the wave of digital transformation have driven numerous changes in education in general and higher education in particular. Today's higher education has gradually shifted from traditional teaching models to more flexible and diverse teaching methods (Vergara *et al.*, 2026; Núñez-Pacheco *et al.*, 2023) [38, 30]. This transition requires universities to restructure their teaching methods, adopting a learner-centered approach within technology-supported learning environments (Núñez-Pacheco *et al.*, 2023) [30].

In this context, digital competence has become one of the core requirements for both lecturers and students (Núñez-Pacheco *et al.*, 2023; Silva-Quiroz & Morales-Morgado, 2022) [30, 34]. For learners, it demands not only basic operational skills but also the ability to apply higher-order competencies to verify information reliability, secure personal data, and use technology responsibly (Ahmed & Roche, 2021; Le & Pole, 2022; Rinekso *et al.*, 2021) [2, 22, 33]. For lecturers, digital competence also requires technological skills and digital pedagogical competence to design effective learning experiences that enhance student motivation, engagement, and collaboration during the learning process (Prieto Andreu, 2020; Fernández-Morante *et al.*, 2023) [31, 13].

Despite significant developmental potential, the digital transformation process in higher education occurs unevenly across countries, institutional types, and academic disciplines (Vergara *et al.*, 2026) [38]. In Southeast Asia, digital transformation in

higher education takes place amidst highly diverse national contexts. There are significant disparities in technical infrastructure conditions, technology accessibility, and educational policy orientations among countries, creating challenges related to the digital divide (Aziz *et al.*, 2026; Fauzan *et al.*, 2022; Nkansah & Oldac, 2024) [6, 12, 28]. Meanwhile, studies also indicate that digital competence development is uneven across demographic groups, university types, and professional fields (Vázquez-Cano *et al.*, 2017; Vergara *et al.*, 2026) [39, 38]. Numerous studies have shown that students' early exposure to mobile devices or social networks for entertainment does not equate to possessing high digital competence (Ahmed & Roche, 2021; Nalaila & Elia, 2024) [2, 25]. The recent explosion of Generative AI tools has expanded the connotation of digital competence to include AI literacy, posing new challenges regarding the risk of technological dependency, learner ethics, and pressure on educators' pedagogical capabilities (Gómez-García *et al.*, 2026; Hellmich *et al.*, 2024; Jusman *et al.*, 2026; Lan *et al.*, 2026) [15, 17, 19, 21].

Although previous studies have provided valuable insights, research gaps remain. First, most empirical studies on digital competence in Southeast Asian higher education are currently limited to cross-sectional surveys or localized case studies at one or a few universities, or within specific disciplines. Additionally, the conceptual framework in this field remains fragmented and inconsistent, with terms such as digital literacy, digital competence, digital fluency, and AI literacy frequently used interchangeably (Jusman *et al.*, 2026; Le & Pole, 2022; Rinekso *et al.*, 2021) [19, 22, 33]. Meanwhile, the few recent literature reviews have primarily applied qualitative narrative review methods within a narrow scope (Jusman *et al.*, 2026) [19] or systematic reviews on a small number of articles without utilizing quantitative bibliometric indicators; furthermore, their data limitations fail to reflect the most recent period (Aziz *et al.*, 2026) [6].

Based on these premises, this study aims to address the following specific research objectives: (1) to describe publication trends regarding digital competence in higher education; (2) to identify the leading authors and countries contributing to the research field of digital competence; (3) to analyze the thematic structure and temporal evolution of digital competence research directions through keyword co-occurrence maps and temporal overlay visualizations; and (4) to identify research gaps and thereby propose future research directions.

Research Methodology

Data Source and Search Strategy

This study applies a bibliometric method to explore academic trends and the thematic development of digital competence in the context of higher education in Southeast Asia. The research team selected the Scopus database for document collection due to its capacity to provide diverse and comprehensive data across various research fields, which facilitates bibliometric analysis (Yusnaini *et al.*, 2023) [43]. An advanced filtering toolkit was applied, and the search strategy was executed on October 2, 2026, as detailed below: TITLE-ABS-KEY (("digital competence*" OR "digital literac*" OR "digital skill*") AND ("higher education" OR "universit*")) AND (LIMIT-TO (AFFILCOUNTRY, "Malaysia") OR LIMIT-TO (AFFILCOUNTRY , "Indonesia") OR LIMIT-TO (AFFILCOUNTRY, "Thailand") OR LIMIT-TO (AFFILCOUNTRY, "Viet Nam") OR LIMIT-TO (AFFILCOUNTRY,"Philippines") OR LIMIT-TO (AFFILCOUNTRY,"Myanmar") OR LIMIT-TO (AFFILCOUNTRY,"Laos") OR LIMIT-TO (AFFILCOUNTRY , "Timor-Leste") OR LIMIT-TO (AFFILCOUNTRY , "Cambodia") OR LIMIT-TO (AFFILCOUNTRY,"Brunei") OR LIMIT-TO (AFFILCOUNTRY, "Singapore")) AND PUBYEAR > 2016 AND PUBYEAR < 2027.

The initial search results yielded 918 documents. To ensure the quality and reliability of the data, the team removed duplicate records and conducted a manual screening of abstracts, titles, and keywords. Through this process, 2 duplicates and 237 irrelevant documents were excluded. The excluded documents comprised 205 records that did not meet the criteria for the digital competence theme, 26 records outside the geographical scope of Southeast Asia, and 6 records outside the higher education context. The team further eliminated 3 documents that had not been officially published in journals from the dataset. The final collection and screening process yielded 676 documents, which were utilized as the dataset for subsequent analyses.

After data cleaning, the team utilized VOSviewer version 1.6.21 to analyze the cross-country co-authorship network, keyword co-occurrence map, and temporal keyword co-occurrence map (overlay visualization). These analyses helped identify thematic clusters, visualize connections between terms, and recognize prominent topics within the research field (Van Eck & Waltman, 2010) [37]. Meanwhile, Microsoft Excel 365 was employed to tabulate frequencies and construct time-series charts, illustrating the growth and distribution of publications by year.

Results

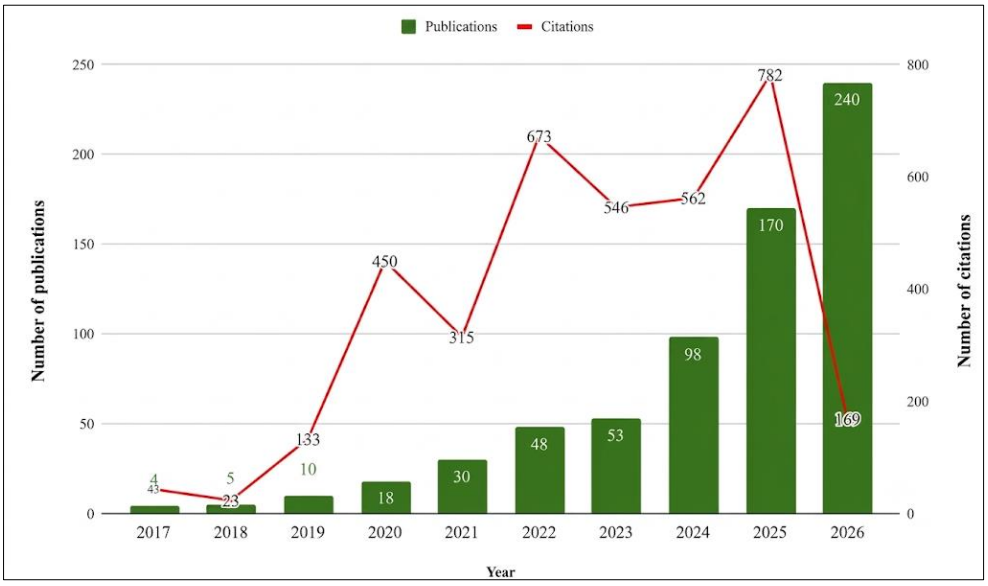
Publication Trends over Time

Figure 1 shows the number of publications and citations by year. Accordingly, the green columns indicate the annual number of publications, while the orange lines represent the annual number of citations.

The research results indicate that the number of publications has increased gradually over the years, particularly following the COVID-19 pandemic (the 2022-2025 period, ranging from 48 to 170 articles). The year 2026 recorded the highest number of publications with 240 articles. Regarding citation counts, uneven fluctuations can be observed across the years. Since 2020, the number of citations has increased significantly, peaking in 2025 with 782 citations. However, as the year 2026 has not yet concluded, the total number of citations for this year cannot be accurately finalized. Overall, the data reflects steady growth, indicating that digital competence in higher education in Southeast Asia remains a topic of significant scholarly interest.

Leading Contributing Countries and Authors

To examine the leading contributing countries and authors, the research team compiled a statistical table based on the collected data. Table 2 presents the top 10 countries/territories with the highest number of publications and citations.



Source: Authors' elaboration based on data from the Scopus database, retrieved on October 2, 2026.

Fig 1: Number of publications and citations by year

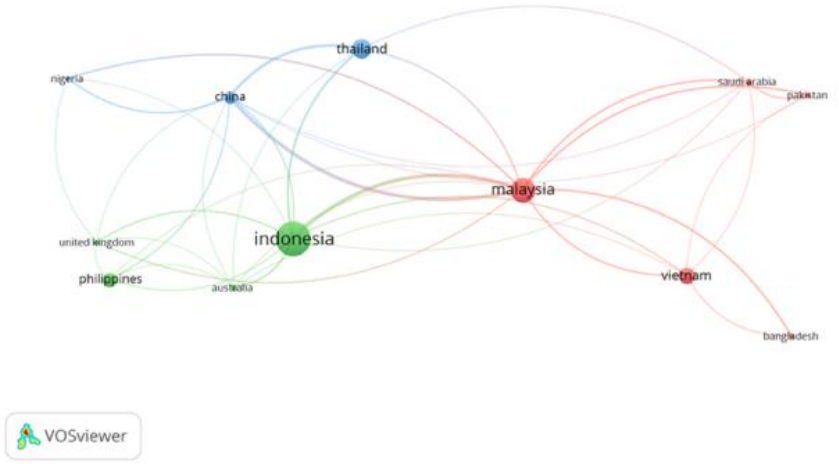
Table 1: Top 10 countries/territories with the highest number of publications and citations

No.	Country/Territory	Total Publications	Total Citations	Average Citations/Publication	Number of Connections
1	Indonesia	321	1.413	4,40	85
2	Malaysia	165	1.281	7,76	142
3	Thailand	103	447	4,34	41
4	China	43	299	6,95	80
5	Philippines	57	261	4,58	28
6	Vietnam	77	211	2,74	23
7	Saudi Arabia	11	149	13,55	23
8	United States	6	140	23,33	13
9	Pakistan	9	132	14,67	18
10	India	6	112	18,67	14

Source: Authors' elaboration based on data from the Scopus database, retrieved on October 2, 2026.

Data in Table 1 reveal that research activities on digital competence in higher education are unevenly distributed across countries/territories. Indonesia leads with 321 published articles and 1,413 citations, followed by Malaysia with 165 articles and 1,281 citations, and Thailand ranking third with 103 articles and 447 citations. This indicates that these three countries have a significant interest in the field of digital competence. While Indonesia has nearly twice the number of articles as Malaysia, its total citation count is only 132 higher. However, China, with 43 articles, reached 299 citations, surpassing the Philippines, which had 57 articles and 261 citations. Similarly, the United States has only 6 articles but achieved 140 citations, nearly equivalent to Saudi Arabia with 11 articles and 149 citations.

Alongside the distribution of publication and citation counts, the cross-country co-authorship network map illustrates the connections in international research activities. Figure 2 presents the cross-country co-authorship network map, with the minimum number of documents per country set to 7 and the minimum number of citations per country set to 0.



Source: Authors' elaboration based on data from the Scopus database, retrieved on October 2, 2026.

Fig 2: Cross-country co-authorship network map

Figure 2 reveals that Indonesia and Malaysia emerge as two prominent nodes on the map, displaying numerous linkages to other countries. Within the entire Southeast Asian region, Indonesia and Malaysia are currently the leading countries in publications related to digital competence in higher education; a large volume of publications is often accompanied by more co-authorship opportunities with other countries (Añar *et al.*, 2021; Suranto *et al.*, 2025) [7, 36].

Considering Vietnam specifically, it can be observed that Vietnam has connections with Malaysia and several other countries, indicating Vietnam's participation in the international research collaboration network. However, compared to Indonesia and Malaysia, the node representing Vietnam has a smaller size on the map. Research within the Southeast Asian region on digital competence in higher education remains generally fragmented, leading to weak research collaboration among countries. Consequently, nations with lower publication volumes like Vietnam are easily pushed to peripheral positions (Ahsan *et al.*, 2025; Wu *et al.*, 2026) [3, 40].

Subsequently, the research team compiled statistics on authors with high publication and citation counts in the research field. Table 2 provides statistical data on the top 10 authors with the highest number of publications and citations.

Table 2: Top 10 authors with the highest number of publications and citations

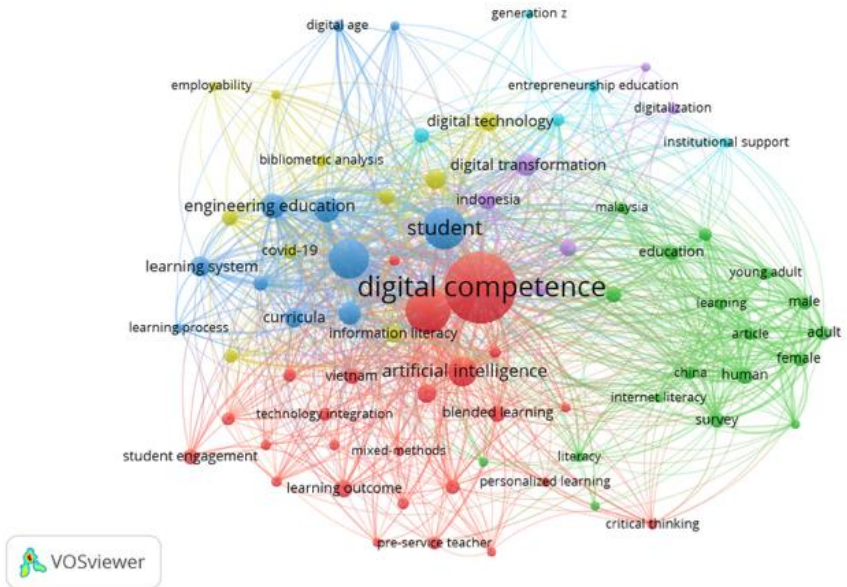
No.	Author	Country	Total Publications	Total Citations
1	Anthonysamy, Lilian	Malaysia	4	281
2	Hidayat, Hendra	Indonesia	9	52
3	Nilsook, Prachyanun	Thailand	5	26
4	Rahmi, Ulfia	Indonesia	4	24
5	Alam, Gazi Mahabubul	Bangladesh	6	20
6	Bashir, Karima	Nigeria	6	20
7	Lei, Miao	China	6	20
8	Wang, Shiwei	China	5	20
9	Mardiana, Harisa	Indonesia	5	17
10	Somabut, Anucha	Thailand	4	8

Source: Authors' elaboration based on data from the Scopus database, retrieved on October 2, 2026.

Regarding publication volume, Indonesia is the country with the most authors among those with the highest number of publications and citations, featuring three authors: Hidayat, Hendra; Rahmi, Ulfia; and Mardiana, Harisa. Among them, Hidayat, Hendra is the most prolific author with 9 publications, despite only entering this research field in 2024. Regarding citation counts, a notable finding is that although Hidayat, Hendra has the most publications, he is not the most cited author. Meanwhile, Anthonysamy, Lilian, despite having only 4 publications, holds the highest citation count at 281, which is three times the combined citations of all three Indonesian authors and exceeds the total citations of the other nine authors combined. Specifically, Anthonysamy, Lilian authors leading studies on self-regulated learning and digital competence, which are considered core, highly cited references within the region (Laba Laksana *et al.*, 2025) [20].

Thematic Structure and Prominent Research Areas

To explore the prominent research themes in the field of digital competence in higher education, the research team conducted a keyword co-occurrence network analysis on the filtered dataset. With a minimum occurrence threshold of 7 times per keyword, the map recorded 75 keywords divided into 6 clusters, encompassing 1,136 links and a total link strength of 3,928 (Figure 3).



Note. Minimum keyword occurrence is 7.
Source: Authors' elaboration based on data from the Scopus database, retrieved on October 2, 2026.

Fig 3: Keyword co-occurrence map

The results show that the most frequently occurring keywords include digital competence (360), higher education (141), student (130), e-learning (112), artificial intelligence (62), and education computing (50). Among these, digital competence holds the central position with 74 links and a total link strength of 842, affirming its pivotal role in the research network (Hung *et al.*, 2025; Nurazmi *et al.*, 2026) [18, 29].

The red cluster (Artificial intelligence applications) features the central keyword digital competence, with prominent linked keywords such as higher education, artificial intelligence literacy, generative artificial intelligence, technology acceptance model, and educational technology. In addition, the keywords blended learning and learning outcome broaden the approach toward the connection between digital competence research and the teaching and learning processes and outcomes in technology-integrated educational environments.

The blue cluster (Digital competence in curricula) is associated with key terms such as e-learning, engineering education, student, learning system, curricular, and learning process, focusing on the application of technology within learning systems and academic curricula.

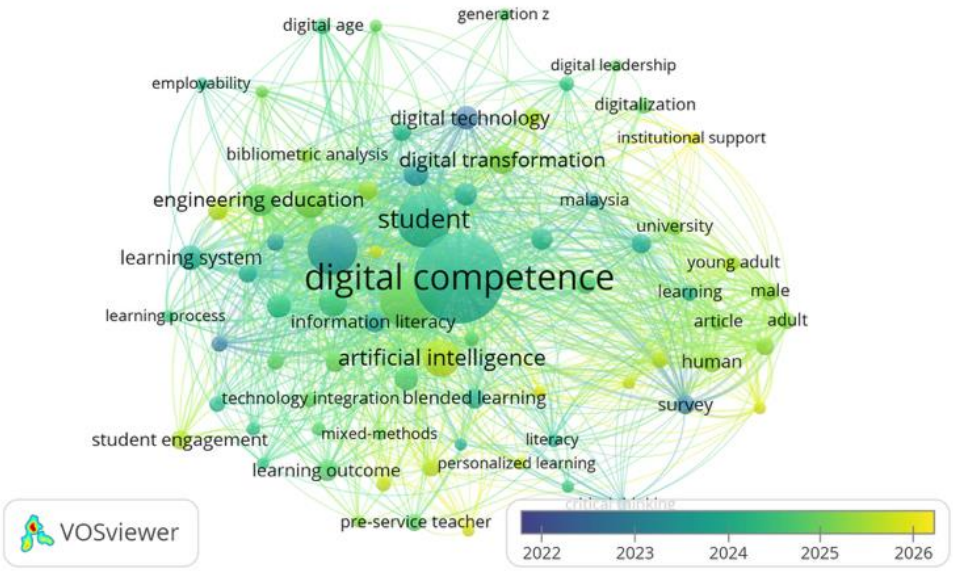
The green cluster (Personal factors in technology use) focuses on individual factors such as self-efficacy, internet literacy, and learning. Furthermore, the keywords human, survey, male, female, and adult indicate the presence of survey studies examining diverse demographic groups, including investigations into age and gender differences in technology use (Bariyyah *et al.*, 2025; Wulandari *et al.*, 2024) [8, 41].

The yellow cluster (Employment and human resource development) includes the appearance of keywords such as higher education institution, digital technology, information literacy, and information and communication, which are linked to career-related terms like employability, personnel, and personnel training. Additionally, the presence of the keywords bibliometric analysis and systematic review within this cluster suggests that this theme is frequently approached by researchers using these two methodologies.

Prominent keywords in the purple cluster (Digital transformation) consist of digital transformation, digitalization, digital leadership, and indonesia. Moreover, the emergence of the keyword teacher in the purple cluster indicates that educators are of significant interest to researchers in the context of digital transformation and leadership competence.

The turquoise cluster (Entrepreneurship education & sustainable development) features keywords such as sustainable development, entrepreneurship education, institution support, generation z, and thailand, expanding the research direction toward sustainable development issues in higher education.

To elucidate the evolution of research themes over time, the research team further utilized a temporal keyword map (overlay visualization), in which the colors of the nodes reflect the average publication time of the keywords during the 2022-2026 period (Figure 4).



Note. Minimum keyword occurrence is 7.
Source: Authors' elaboration based on data from the Scopus database, retrieved on October 2, 2026.

Fig 4: Keyword co-occurrence map for the 2022-2026 period

During the 2022-2023 period, keywords with blue and purple-blue hues emerged, such as e-learning, digital technology, learning system, learning process, blended learning, and critical thinking. Studies during this period focused on learning systems, teaching organizational methods, and the capacity to integrate technology into the training process. The appearance of blended learning indicates that combining face-to-face and online learning formats was one of the approaches garnering significant interest.

By the 2024-2025 period, the map recorded the prominent presence of keywords such as digital competence, student, digital transformation, digital leadership, digitalization, information literacy, and employability. Compared to the previous period, the research focus tended to expand from technology application in teaching and learning activities to learners' competencies and the digital transformation process at the educational institutional level. The simultaneous appearance of digital leadership and digitalization suggests an interest in the roles of governance, leadership, and

organizational conditions during the digital transformation process at higher education institutions. In addition, information literacy and employability indicate that digital competence is also situated in relation to the ability to access and evaluate information, as well as to meet the demands of the professional environment.

By 2026, several keywords with yellow hues, such as artificial intelligence, institutional support, personalized learning, student engagement, and generation Z, displayed a relatively late average year of occurrence. Notably, artificial intelligence reflects the expansion of digital competence research into the context of artificial intelligence applications in higher education. The emergence of personalized learning and student engagement also suggests an interest in students' experiences and participation levels in technology-supported learning environments. Meanwhile, institutional support emphasizes the aspect of organizational conditions, indicating that the development and application of digital competence need to be considered in conjunction with support from educational institutions.

Discussion

Research Trends on Digital Competence in Higher Education in Southeast Asia

Based on the keyword co-occurrence analysis, the results reflect scholars' interest in digital competence in higher education and its intersection with artificial intelligence, digital skills, employment, and sustainable development.

First, the red cluster, with the central keyword digital competence, indicates that discussions on digital competence are significantly focused on higher education (Barrios-del-Ángel *et al.*, 2026) [9]. The keyword artificial intelligence literacy clearly reflects the expansion from traditional digital competence frameworks to modern higher education environments and interaction with technology. This transition requires learners and educators to upgrade from basic competencies to profound critical thinking, academic integrity (Dringó-Horváth *et al.*, 2025) [11], research ethics, and self-regulated learning (Hao *et al.*, 2026) [16]. The blue cluster, featuring keywords such as e-learning, learning system, curricular, and learning process, reflects that digital competence is also associated with policies on innovating teaching methods and curricula at educational institutions (García-Peñalvo *et al.*, 2020; Punie, 2017) [14, 32]. Simultaneously, learning outcomes, engagement, and technology acceptance are aspects linked to learners' digital competence development process (Nguyen & Hoang, 2026; Nurazmi *et al.*, 2026) [27, 29].

The green cluster reflects an interest in learners' beliefs, motivation, and technology accessibility, highlighted by keywords such as self-efficacy and internet literacy. Meanwhile, the yellow cluster indicates the literature's focus on digital technology skills, information-seeking skills, and their relationship with employment recruitment and human resource development in the context of COVID-19. Integrating technology into training activities does not mean learners have fully developed digital competence; learners' levels of technology access and their ability to exploit, use, and apply technology span from their learning process to their subsequent participation in the labor market (Llopis-Albert *et al.*, 2026) [23]. Current higher education exhibits a clear training gap, failing to fully meet the recruitment demands of the digital labor market (Akour & Alenezi, 2022) [4]. Therefore, digital competence must be situated within the institutional environment and societal demands, rather than viewed merely as an individual factor.

The purple and turquoise clusters address two main themes: leadership and teaching competence in digital transformation, and entrepreneurship education linked to sustainable development. Notably, keywords in the purple cluster interconnect with the turquoise cluster through terms like sustainable development, entrepreneurship education, and institution support. The processes of digital transformation, digitalization, and entrepreneurship education in higher education are linked to institutional support and directed toward sustainable development. Students' digital competence can only translate into substantive value in the labor market when higher education moves beyond a purely technical approach to a synchronized institutional model combining entrepreneurial innovation and comprehensive sustainable development standards (Llopis-Albert *et al.*, 2026; Yen & Lam, 2026) [23, 42].

This analysis demonstrates that digital competence plays a pivotal role in Southeast Asian higher education, encompassing multiple interconnected aspects from artificial intelligence and digital transformation to sustainable development. During the 2022-2023 period, the prominent emergence of the keyword e-learning suggests that the COVID-19 pandemic and the shift to online teaching contributed to highlighting the role of digital competence in higher education, particularly in Southeast Asia (Adima *et al.*, 2025; Nguyen *et al.*, 2024) [1, 26]. Regarding Indonesia specifically, which holds the highest number of articles in the dataset, Aulia and Tasrif (2025) [5] note that Indonesia's large-scale higher education system generates substantial resources for scientific publications. Furthermore, a country's average citation rate also depends primarily on the quality of the journals where the articles are published; articles in Q1-ranked journals attract global citations compared to those in lower-ranked journals (Birkun, 2026; Mcmanus *et al.*, 2023; Smith *et al.*, 2014) [10, 24, 35].

Research Gaps

Although research on digital competence in Southeast Asian higher education is trending upward, the bibliometric analysis results reveal several aspects that still require clarification. First, the uneven distribution of publication volumes and the level of connectivity in the cross-country co-authorship network raise issues regarding the balance of knowledge development in the region. Current findings primarily reflect disparities in contribution levels and positions within the collaboration network but have yet to explain the factors driving these differences.

Next, the keyword co-occurrence analysis shows that themes of digital competence, digital transformation, and artificial intelligence are linked to sustainable development. However, this research direction is not as prominent as research groups focusing on digital competence, technology application in teaching and learning, and artificial intelligence.

Finally, the temporal keyword map indicates that interest in digital competence is expanding from issues of learning systems and educational technology applications to artificial intelligence, student engagement, and institutional support. However, bibliometric results have not clarified the extent to which existing studies address the nexus between digital competence, information evaluation capabilities, critical thinking, and the responsible use of artificial intelligence.

Future Research Directions

Based on the identified research gaps, future studies may consider the following proposed research directions regarding digital competence in the higher education context: First, subsequent studies should specifically examine the essential competency components required when learners and educators use AI in learning, teaching, and research, while also evaluating the roles of training curricula and institutional policies in developing these competencies.

Second, deeper investigation is needed into the roles of educational policies, research resources, and regional collaboration opportunities in Southeast Asia in shaping and developing digital competence research within individual countries.

Third, in the context of higher education striving for sustainable development, future studies could focus on empirically testing the relationship between digital competence, entrepreneurship education, and the capacity to achieve sustainable development goals.

Conclusion

This study has comprehensively synthesized and analyzed the landscape of digital competence in higher education in Southeast Asia using a bibliometric approach. The results reveal that scientific publications in this field have grown robustly, especially breaking through since the COVID-19 pandemic and maintaining this momentum. Geographically, research volume is unevenly distributed, with three countries (Indonesia, Malaysia, and Thailand) holding absolute dominance in the number of articles. Regarding authors, Hidayat, Hendra has the highest publication count with 9 articles, while Anthonysamy, Lilian leads in citations with 281 despite having only 4 publications. This finding demonstrates that publication volume and academic impact are not entirely correlated. Thematically, research on digital competence in Southeast Asian higher education is broadening from technology application in teaching and learning to issues concerning artificial intelligence, labor market responsiveness, and the supportive role of institutions. Notably, the linkages among digital transformation, entrepreneurship education, and sustainable development indicate that digital competence should be approached as a pivotal element in the higher education innovation process, rather than being confined to individuals' technological skills. Nevertheless, this study still possesses certain limitations. Utilizing data exclusively from Scopus and limiting it to English-language documents may result in the omission of some relevant works. Additionally, keyword co-occurrence analysis primarily reflects connections between themes without fully capturing the in-depth content and context of individual studies. Despite this, the research findings contribute to generalizing publication trends and the thematic evolution of digital competence in Southeast Asian higher education, while simultaneously suggesting directions for future research.

Declaration of AI Usage

During the preparation of this research, the authors utilized artificial intelligence tools, including ChatGPT, Gemini, and Gemini Notebook, to assist with literature searches, language phrasing, proofreading, and improving content presentation. The authors take full responsibility for the accuracy and authenticity of the data, the analytical results, and the final content of this manuscript.

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Conflict of Interest

The authors declare that they have no conflict of interest.

References

1. Adima MF, Baharudin N, Syafe'i I, Zulaikha S, Susilawati B, Shabira Q. Digital literacy trends in Islamic perspective in higher education: A bibliometric review. J Penelit Pendidik IPA. 2025;10(12):1012-1026. doi: 10.29303/jppipa.v10i12.9847.
2. Ahmed ST, Roche T. Making the connection: Examining the relationship between undergraduate students' digital literacy and academic success in an English medium instruction (EMI) university. Educ Inf Technol. 2021;26(4):4601-4620. doi: 10.1007/s10639-021-10443-0.
3. Ahsan MH, Ismail SA, Ahmad M, Nurhayati S. Digital literacy in ASEAN higher education: A two-decade bibliometric review. Labuan E-J Muamalat Soc. 2025;19(2):87-112. doi: 10.51200/ljms.v19i2.6850.
4. Akour M, Alenezi M. Higher education future in the era of digital transformation. Educ Sci. 2022;12(11):784. doi: 10.3390/educsci12110784.
5. Aulia F, Tasrif E. Bibliometric analysis of research trends in digital literacy within Indonesian education: Development, challenges, and opportunities. J Pendidik MIPA. 2025;26(1):595-611. doi: 10.23960/jpmipa.v26i1.pp595-611.
6. Aziz MA, Ayob NH, Ayob NA, Ahmad Y, Abdulsomad K. Strategies for overcoming digital divide in higher education institutions: A systematic literature review. Educ Policy Anal Arch. 2026;34. doi: 10.14507/epaa.34.9074.
7. Añar LE, Bicar BB, Tantoy OA. Research competitiveness among higher education institutions in South East Asia: A complex adaptive system. Asia Pac J Soc Behav Sci. 2021;17:35-45. doi: 10.57200/apjsbs.v17i2599-4891.224.
8. Bariyyah K, Andrianie S, Ariyanto RD, Soejanto LT, Setyorini S, Oktasari M, Muttaqiin M, Ifdil I. Shaping future-ready learners: A rasch analysis of university students' digital competence and demographic factors using SDiCoS. 2025 11th Int Conf Educ Technol (ICET). 2025:366-374. doi: 10.1109/ICET67257.2025.11290902.
9. Barrios-del-Ángel AX, Jiménez-Ferretiz LE, Silva-Lavín H, Sánchez-Garza MN, Jiménez-Almaguer KP, Reyna-Castillo M. Digital literacy research for teaching excellence in higher education: A bibliometric perspective. Educ Sci. 2026;16(2):229. doi: 10.3390/educsci16020229.
10. Birkun AA. Global academic productivity in emergency medicine and research output by countries of different income levels. Clin Exp Emerg Med. 2026;13(3):326-335. doi: 10.15441/ceem.25.144.

11. Dringó-Horváth I, Rajki Z, T Nagy J. University teachers' digital competence and AI literacy: Moderating role of gender, age, experience, and discipline. Educ Sci. 2025;15(7):868. doi: 10.3390/educsci15070868.
12. Fauzan F, Arifin F, Lubis MA, Firdaus FM. Lecturer's digital literacy ability in the pandemic. Cypriot J Educ Sci. 2022;17(4):1130-1142. doi: 10.18844/cjes.v17i4.7122.
13. Fernández-Morante C, López BC, Casal-Otero L, León FM. Teachers' digital competence. The case of the University System of Galicia. J New Approaches Educ Res. 2023;12(1):62-76. doi: 10.7821/naer.2023.1.1139.
14. García-Peñalvo FJ, Corell A, Abella-García V, Grande M. La evaluación online en la educación superior en tiempos de la COVID-19 [Online assessment in higher education in times of COVID-19]. Educ Knowl Soc. 2020;21(0):26. doi: 10.14201/eks.23086.
15. Gómez-García M, Cáceres-Troche D, Boumadan-Hamed M, Soto-Varela R. Generative AI readiness in public higher education: Assessing digital teaching competence in Paraguay through machine learning models. Appl Sci. 2026;16(9):4302. doi: 10.3390/app16094302.
16. Hao F, Wang Z, Ma L, Zhao H, Liu X, Zhao X, Zhang N, Li X. How to promote student creativity through AI in higher education: The role of students' attitude and digital competencies. Front Public Health. 2026;14:1772946. doi: 10.3389/fpubh.2026.1772946.
17. Hellmich EA, Vinall K, Brandt ZM, Chen S, Sparks MM. ChatGPT in language education: Centering learner voices. Technol Lang Teach Learn. 2024;6(3):1741. doi: 10.29140/tltl.v6n3.1741.
18. Hung DV, Long DT, Tuyet BTA, Mai NH, Yen TTH, Van VTH, Hai NT. Digital literacy for higher students: A bibliometric analysis from 1978 to 2023. Coll Undergrad Libr. 2025;32(3-4):103-132. doi: 10.1080/10691316.2025.2550935.
19. Jusman J, MS AT, Tang J, Jusrianto J, Ibadurrahman, Satrio A, Rizal A. Artificial intelligence for learning: Bridging students' digital competence and literacy in universities. J Intell Decis Mak Inf Sci. 2026;3(6s):543-559. doi: 10.59543/jidmis.v3.1413.
20. Laba Laksana DN, Qondias D, Hendratma Gunawan KD, Sastrika Ayu PE, Putri Srinadi NL, Indrawan IPO. Mapping the evolution of digital literacy in Asian learning environments: A bibliometric analysis. Salud Cienc Tecnol. 2025;5:1690. doi: 10.56294/saludcyt20251690.
21. Lan X, Li M, Wang Y, Chen M, Jiang H, Lu S, Zhou Y. Characteristics and determinants of artificial intelligence (AI) literacy in Chinese nursing students: A cross-sectional study. Int J Nurs Stud Adv. 2026;10:100482. doi: 10.1016/j.ijnsa.2026.100482.
22. Le D, Pole A. Beyond learning management systems: Teaching digital fluency. J Polit Sci Educ. 2022;19(1):134-153. doi: 10.1080/15512169.2022.2139268.
23. Llopis-Albert C, Juárez-Varón D, Pocek J, Costa-Climent R. Institutional entrepreneurship and digital transformation in higher education: A configurational and structural analysis of digital maturity. Int Entrep Manag J. 2026;22(2). doi: 10.1007/s11365-026-01221-w.
24. Mcmanus C, Neves AAB, Diniz Filho JA, Pimentel F, Pimentel D. Funding as a determinant of citation impact in scientific papers in different countries. An Acad Bras Cienc. 2023;95(1):e20220515. doi: 10.1590/0001-3765202320220515.
25. Nalaila S, Elia EF. Students' digital literacy skills for learning in selected Tanzania's public universities. Cogent Educ. 2024;11(1). doi: 10.1080/2331186X.2024.2355350.
26. Nguyen ND, Le HTT, Truong BT, Ha DV, Nguyen NVT, Tran T. A bibliometric analysis and visualisation of digital teaching and learning publications from Southeast Asia countries. Eur J Educ. 2024;59(4):e12781. doi: 10.1111/ejed.12781.
27. Nguyen HD, Hoang TC. Phân tích trắc lượng thư mục các nghiên cứu về năng lực số của học sinh tiểu học giai đoạn 2012-2026 [A bibliometric analysis of research on digital competence of primary school students in the 2012-2026 period]. Tap Chi Giao Duc. 2026;26(10):8-13.
28. Nkansah JO, Oldac YI. Unraveling the attributions of digital literacy skills and knowledge gap in Ghana's higher education: Undergraduate students voices in a phenomenological study. Educ Inf Technol. 2024;29. doi: 10.1007/s10639-024-12483-8.
29. Nurazmi N, Ardiana A, Halim SNH, Nurfadilah N. Global research trends in digital competence and teaching media: A bibliometric study. Multidiscip Rev. 2026;9(12):2026570. doi: 10.31893/multirev.2026570.
30. Núñez-Pacheco R, Barreda-Parra A, Castro-Gutierrez E, Turpo-Gebera O, Aguaded I. Professor's perception of the use of digital skills and gamification in a Peruvian university. J Technol Sci Educ. 2023;13(2):431. doi: 10.3926/jotse.1737.
31. Prieto Andreu JM. Una revisión sistemática sobre gamificación, motivación y aprendizaje en universitarios [A systematic review of gamification, motivation, and learning in university students]. Teor Educ Rev Interuniv. 2020;32(1):73-99. doi: 10.14201/teri.20625.
32. Punie Y, ed. European framework for the digital competence of educators: DigCompEdu. Publications Office; 2017. doi:10.2760/159770
33. Rinekso AB, Rodliyah RS, Pertiwi I. Digital literacy practices in tertiary education: A case of EFL postgraduate students. Stud Engl Lang Educ. 2021;8(2):622-641. doi: 10.24815/siele.v8i2.18863.
34. Silva-Quiroz J, Morales-Morgado EM. Assessing digital competence and its relationship with the socioeconomic level of Chilean university students. Int J Educ Technol High Educ. 2022;19(1):46. doi: 10.1186/s41239-022-00346-6.
35. Smith MJ, Weinberger C, Bruna EM, Allesina S. The scientific impact of nations: Journal placement and citation performance. PLoS One. 2014;9(10):e109195. doi: 10.1371/journal.pone.0109195.
36. Suranto B, Kovač N, Haryono K, Abdul Rahman SF, Mohd Shukri AF, Suder M, Kusa R, Žugić D. State of digitalization in the Southeast Asia region - bibliometric analysis. Qual Quant. 2025;60. doi: 10.1007/s11135-025-02296-3.
37. van Eck NJ, Waltman L. Software survey: VOSviewer, a computer program for bibliometric mapping. Scientometrics. 2010;84(2):523-538. doi: 10.1007/s11192-009-0146-3.

38. Vergara D, del Bosque A, Fernández-Arias P, Lampropoulos G, Antón-Sancho Á. Bridging the digital divide among higher education faculty: The role of university type and faculty ICT expertise. Educ Sci. 2026;16(4):579. doi: 10.3390/educsci16040579.
39. Vázquez-Cano E, Meneses EL, García-Garzón E. Differences in basic digital competences between male and female university students of Social Sciences in Spain. Int J Educ Technol High Educ. 2017;14(1):27. doi: 10.1186/s41239-017-0065-y.
40. Wu S, Radin Firdaus RB, Wang Y, Kamsi NS. Mapping higher education research in Malaysia and Singapore (2014-2024): A bibliometric analysis through the research-policy-practice lens. Sage Open. 2026;16(1). doi: 10.1177/21582440261423292.
41. Wulandari DA, Soeprobowati TR, Nugraheni DMK. Exploring the impact of age and gender on multi-device usage patterns in online education. 2024 7th Int Conf Informatics Comput Sci (ICICoS). 2024:301-305. doi: 10.1109/icicos62600.2024.10636909.
42. Yen TH, Lam BQ. How education and institutional support shape university students' digital sustainable entrepreneurial intentions: The moderating role of sustainable development goals knowledge. Acta Psychol. 2026;266:106965. doi: 10.1016/j.actpsy.2026.106965.
43. Yusnaini, Nengyanti, Yanti M, Santoso D. Profiling COVID-19 research in the social sciences from Indonesia based on Scopus database. Malays J Libr Inf Sci. 2023;28(1):89-107. doi: 10.22452/mjlis.vol28no1.6.

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