Work Engagement: Global Trends, Bibliometric Analysis (2020-2025)

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ABSTRACT - This study examines global trends in work engagement research from 2020 to 2025 through a bibliometric analysis, with particular attention to Pakistan's contribution. Using Scopus data, 1,616 publications authored by 5,767 scholars were analyzed. Bibliometric indicators, including citations, h-index, g-index, and m-index, were generated using BiblioMagika and visualized through Microsoft Excel. The findings indicate steady growth in work engagement research, with dominant contributions from Business, Management, Psychology, and Social Sciences. The United States, Spain, and the United Kingdom emerged as leading countries in publication output, while authors such as Bartelmus and Markandya demonstrated high citation impact. Frontiers in Psychology and the International Journal of Environmental Research and Public Health were identified as highly influential journals. Despite the expanding global literature, research output remains concentrated in developed countries, with limited contributions from Pakistan. The study highlights the need for greater geographic diversity, methodological expansion, and integration of related constructs to guide future work engagement research.

INTRODUCTION

Work engagement has become a central topic within contemporary social science and education research and is commonly examined through theoretical perspectives such as the Job Demands–Resources (JD–R) framework and psychological capital (Bakker & Demerouti, 2017; Zhang et al., 2025). Over the past two decades, scholarly interest in work engagement has increased steadily across fields including education, healthcare, business, and hospitality. Despite this expansion, the distribution of research output remains uneven, with a strong concentration of publications originating from developed economies. Contributions from developing contexts, particularly Pakistan, remain limited, creating an imbalance in global representation (Han et al., 2023).

Previous bibliometric studies have documented publication growth, influential authors, leading journals, and thematic developments in work engagement research. However, these analyses largely reflect Western and economically advanced regions, offering restricted insight into the visibility and contribution of developing countries within the field (Zhang et al., 2025). Such imbalance constrains a broader understanding of how work engagement scholarship has evolved across diverse socio-economic, cultural, and institutional contexts and underscores the need for bibliometric evidence that captures global diversity more comprehensively.

Bibliometric analysis provides a structured and quantitative approach for examining scientific development by assessing publication output, citation impact, and intellectual linkages among studies. By utilizing publication and citation data, bibliometric techniques support the identification of research productivity, influential contributors, collaborative patterns, and emerging themes within a field (Saputro, Prasetyo, Wibowo, et al., 2023). Indicators related to quantity, quality, and structural relationships among publications enable deeper interpretation of how research areas evolve over time (Valérie & Pierre, 2010; Robaina Castillo, 2022).

Although bibliometric approaches are subject to limitations such as database coverage bias and uneven disciplinary representation (Mfengu & Raju, 2024; Chen, Tsang, & Wu, 2023), they remain a reliable method for synthesizing large volumes of literature and identifying research gaps in work engagement scholarship.

Situating Pakistan within a global bibliometric context is particularly important for understanding patterns of inclusion and underrepresentation in work engagement research. Pakistan's socio-economic, cultural, and geopolitical environment shapes workplace practices through traditional norms, religious values, and social structures (Khan, 2017; Memon et al., 2021). While higher education and research output have expanded, challenges related to research quality, collaboration, and ethical practices continue to influence scholarly visibility (Gupta, 2012; Naseem et al., 2019; Fazal, 2022). At the same time, developments in education, technology, entrepreneurship, and social policy have generated increasing attention to work-related issues within the country (Latif, 2023; Pasha, 2024). Examining Pakistan's contribution alongside global publication trends helps position its research output within the broader scholarly landscape, identify gaps in geographical representation, and indicate future directions that are both locally relevant and globally meaningful (Hassan & Ara, 2022; Moazam, 2006).

Accordingly, this article presents a bibliometric analysis of global research on work engagement published between 2020 and 2025. By examining publication trends, influential countries, authors, journals, and subject areas, the analysis offers an updated overview of the field's recent development and highlights the positioning of Pakistan within global work engagement scholarship.

RESEARCH OBJECTIVES AND QUESTIONS

1. To analyze global publication trends and growth patterns in work engagement research from 2020 to 2025.

2. To identify the most influential countries, authors, and journals contributing to work engagement scholarship.

SIGNIFICANCE OF STUDY

This article advances understanding of global work engagement research by providing a comprehensive bibliometric analysis of Scopus-indexed publications published between 2020 and 2025. Using Bibliomagika and Microsoft Excel, the analysis examines publication trends, authorship patterns, contributing countries, subject categories, and leading journals. By focusing on peer-reviewed articles published in English, the findings offer a consistent and transparent overview of recent developments in the field. The results highlight global research patterns, reveal the underrepresentation of developing countries such as Pakistan, and identify emerging directions in work engagement scholarship, offering valuable insights for researchers working within education and the broader social sciences.

THEORETICAL BACKGROUND

The Job Demands–Resources (JD–R) framework is a widely used theoretical perspective in work engagement research. It explains engagement through the balance between job demands and job resources. Job demands refer to aspects of work that require sustained physical or psychological effort and may lead to strain when excessive, while job resources support motivation, learning, and personal development (Bakker & Demerouti, 2017). The framework provides a structured explanation of why certain work environments foster high engagement, whereas others contribute to burnout or reduced wellbeing.

From a bibliometric perspective, JD–R-based studies are highly visible across citation counts, keyword frequencies, and co-citation networks. The framework consistently appears in highly cited publications and frequently used keywords, particularly in psychology, education, management, and health-related journals. This prominence indicates that JD–R serves as a central theoretical foundation shaping the intellectual structure of work engagement research.

Bibliometric mapping further shows strong associations between JD–R studies and themes such as workplace conditions, motivation, job stress, and wellbeing, highlighting its influence on global research

trends from 2020 to 2025. Psychological capital (PsyCap) has emerged as an important complementary theoretical lens in work engagement research. PsyCap refers to a set of positive psychological resources hope, self-efficacy, resilience, and optimism—that support adaptive coping and sustained motivation in challenging work environments (Luthans et al., 2006). Within the engagement literature, PsyCap is commonly examined as a psychological resource that strengthens positive work-related states and supports sustained involvement.

Bibliometric evidence shows that PsyCap is frequently co-cited with JD–R-based studies, indicating growing conceptual integration within the field. Highly cited research links higher PsyCap with stronger work engagement and improved wellbeing (Bekker, 2017). Keyword co-occurrence analysis further reveals that PsyCap is often examined alongside constructs such as burnout, mindfulness, and self-leadership, reflecting its embedded position within broader engagement research networks. However, PsyCap-related research remains largely concentrated in developed economies, with limited contributions from developing contexts such as Pakistan.

Integrating JD–R and PsyCap within a bibliometric framework highlights how work engagement research has evolved in recent years. Co-citation and keyword mapping indicate that studies referencing both frameworks focus on the interaction between job-related conditions and psychological resources. Overall, JD–R provides the dominant structural explanation for engagement, while PsyCap adds depth by explaining psychological processes that sustain engagement. Together, these frameworks form a cohesive theoretical foundation while also revealing the need for broader geographic representation in future research.

METHODOLOGY

Data Source and Search Strategy

This bibliometric study used the Scopus database as the primary data source, with records retrieved on 10 August 2025. The keyword "work engagement" was applied to publication titles, abstracts, and author keywords to identify relevant research. The dataset was restricted to English-language journal articles published between 2020 and 2025. Books, book chapters, dissertations, conference papers, unpublished studies, and retracted publications were excluded to ensure reliability and consistency in the analysis.

Information Extraction, Tools and Analysis

The study selection process is illustrated in Figure 1, which details the identification, screening, and inclusion stages. Erratum notices and retracted articles were removed to avoid inaccuracies. The selected publications were analyzed using BiblioMagika to generate bibliometric indicators, including total publications, citations, citations per paper, and impact indices such as the h-index, g-index, and m-index. Microsoft Excel was used to organize metadata, calculate frequency distributions, and create visualizations.

Extracted data included authorship, publication year, country, institution, subject category, and journal title. Frequency counts and percentages were calculated to examine global trends, research productivity, and patterns across authors, institutions, subject areas, and journals. This methodology provides a systematic mapping of work engagement research from 2020 to 2025, offering clear insights for scholars, practitioners, and policymakers.
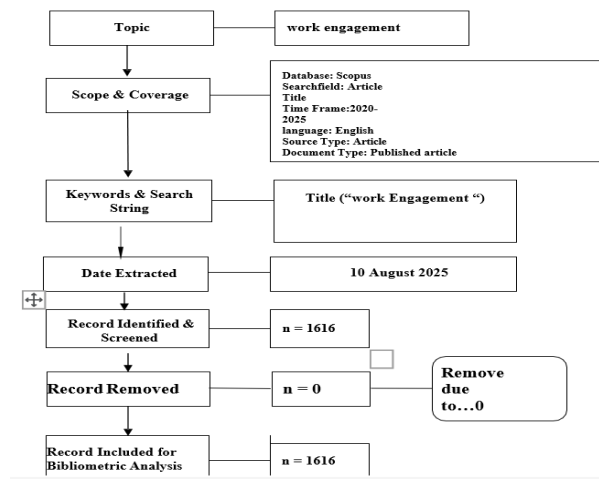
Figure 1. Flow diagram of the search strategy.
Source: Zakaria et al. (2020), Moher et al. (2009**)**

Data Cleaning and Harmonizing

The Scopus data were cleaned and standardized using BiblioMagika@(Ahmi, 2024), to ensure accuracy, correcting variations in author names, affiliations, and publication details. Detailed bibliometric analyses, including citation counts, author contributions, and publication years, were conducted, providing a reliable foundation to examine global work engagement research trends from 2020 to 2025.

RESULTS

Data extraction and tools result section delivers a thorough analysis of the work engagement research landscape addressing research questions detailed in the introduction. By aligning the findings with these RQ. They aim to provide comprehensive insights for scholars, practitioners and policy makers**.**

The Current Landscape (Trends) of Work Engagement Research Global Context

To address the first research question which seek to understand the current landscape of Work engagement research question "what is the landscape of work engagement research? This section analyzes the distribution of publications by numerous factors, such as document type, I, and subject areas. Additionally, this research discusses the overall citation metrics for publication with work engagement domain to gain insight into their impact and relevance. Table 1 presents the citation metrics and various parameters of bibliometric analysis, offering insight into the impact and relevance of the publication in WE domain. The research was conducted using biblioMagika(Ahmi, 2024) software, which transformed Scopus data into meaningful metrics such as number of papers, numbers of citations, total years, citations per year, citation per author, paper per author, h-index, g-index, m-index. As Shown in table 1, the study considered 1,616 publications were produced with contributions from 5,767 authors. Among these, 1,229 papers were cited, generating an overall citation count of 13,750. The analysis shows that each paper received an average of 8.5 citations, whereas the cited papers achieved a higher average of 11.19% citations. In terms of author contribution, the citation per author was 2.38%. Furthermore, the citation sums within the h-core amounted to 4,900, highlighting the influence of the most impactful publications during this period.

Table 1. Basic Information about the Dataset

Start Year	2020
End Year	2025
Total Publications	1616
Number of Contributing Authors	5767
Number of Cited Papers	1229
Total Citations	13,750
Citation per Paper	8.50
Citation per Cited Paper	11.19
Citation per Author	2.38
Citation sums within h-Core	4,900

Source: Generated by the author(s) using biblioMagika® (Ahmi, 2024)

Table 2 presents the subject area analysis indicates that research output from 2022 to 2025 was concentrated in three dominant fields: Business, Management, and Accounting (34.72%, 561 papers), Psychology (28.96%, 468 papers), and Social Sciences (27.97%, 452 papers). These disciplines collectively represent the core focus of publications during the period. Alongside these, significant contributions were observed in Medicine (16.09%, 260 papers) and Nursing (9.84%, 159 papers), highlighting strong engagement in health-related research. Mid-level contributions were made in Environmental Science (6.81%, 110 papers), Economics, Econometrics and Finance (6.06%, 98 papers), and Computer Science (5.32%, 86 papers), reflecting the multidisciplinary reach of scholarship. Meanwhile, smaller but notable shares came from Arts and Humanities (4.64%, 75 papers), Decision Sciences (4.58%, 74 papers), and Multidisciplinary studies (3.71%, 60 papers). Emerging areas with modest representation included Energy (2.54%, 41 papers), Neuroscience (2.48%, 40 papers), Agricultural and Biological Sciences (2.35%, 38 papers), Engineering (2.29%, 37 papers), and Biochemistry, Genetics and Molecular Biology (2.04%, 33 papers), alongside contributions from Health Professions (2.04%, 33 papers). The least represented fields were Mathematics (0.56%, 9 papers) and Pharmacology, Toxicology and Pharmaceutics (0.31%, 5 papers), indicating comparatively limited scholarly activity in these domains.

Table 2. Subject Area

Subject Area	TP	%
Business, Management and Accounting	561	34.72%
Psychology	468	28.96%
Social Sciences	452	27.97%
Medicine	260	16.09%
Nursing	159	9.84%
Environmental Science	110	6.81%
Economics, Econometrics and Finance	98	6.06%
Computer Science	86	5.32%
Arts and Humanities	75	4.64%
Decision Sciences	74	4.58%
Multidisciplinary	60	3.71%
Energy	41	2.54%
Neuroscience	40	2.48%
Agricultural and Biological Sciences	38	2.35%
Engineering	37	2.29%
Biochemistry, Genetics and Molecular Biology	33	2.04%
Health Professions	33	2.04%
Mathematics	9	0.56%
Pharmacology, Toxicology and Pharmaceutics	5	0.31%

Source: Generated by the author(s) using biblioMagika® (Ahmi, 2024)

Top Contributing Authors, Journals, Institutions, Countries

i. Most Productive Authors

Table :3 The findings indicate notable differences in authors' productivity and citation impact. Robert D. Cairns (McGill University) has the highest number of publications (7) but with very low citation impact (2 citations, C/P = 0.29). In contrast, Peter Bartelmus (University of Heidelberg) demonstrates the strongest influence, receiving 110 citations from only 4 papers (C/P = 27.5). Similarly, Anil Markandya (University of Bath) records 29 citations from 4 publications (C/P = 7.25), reflecting consistent recognition of his work. Moderate citation performance is observed for Jui-Che Tu (Taiwan), I. Putu Astawa (Indonesia), and Milijana Novovic Buric (Montenegro), with C/P values ranging from 3 to 8. Shaizy Khan (India) shows comparatively strong impact with a C/P of 5 and the highest m-index (0.667), suggesting more recent and influential contributions. Conversely, Thomas Aronsson (Sweden) has not received citations despite two publications. Overall, Bartelmus and Markandya emerge as the most influential contributors in terms of quality of citation.

Table 3. Most productive authors

Full Name	Current Affiliation	Country	TP	TC	C/P	C/CP	h	G	M
Cairns, Robert D.	McGill University	Canada	7	2	0.29	1	1	1	0.038
Markandya, Anil	University of Bath	Italy	4	29	7.25	7.25	3	4	0.143
Bartelmus, Peter	University of Heidelberg	Germany	4	110	27.5	36.67	2	4	0.063
Aronsson, Thomas	University of Umeå	Sweden	2	0	0	0	0	0	0
Tu, Jui-Che	National Yunlin University of Science and Technology	Taiwan	2	6	3	6	1	2	0.091
Astawa, I. Putu	State Polytechnic of Bali	Indonesia	2	6	3	3	2	2	0.25
Stojanovic, Andjela Jaksic	University of Donja Gorica	Montenegro	2	16	8	8	1	2	0.25
Thornton, Daniel B.	Queen's University	Canada	2	2	1	2	1	1	0.077
Buric, Milijana Novovic	University of Montenegro	Montenegro	2	16	8	8	1	2	0.25
Khan, Shaizy	Amity University	India	2	10	5	5	2	2	0.667

Source: Generated by the author(s) using biblioMagika® (Ahmi, 2024)

ii. Influential Journals and Citation Analysis

Table :5 and figure :2 presents the ten most influential source titles in the field of work engagement research, ranked by citation impact (citations per paper, C/P). The International Journal of Environmental Research and Public Health demonstrated the highest influence, with an average of 15.63 citations per paper across 32 publications, reflecting both consistent productivity and strong scholarly impact. Similarly, the Journal of Nursing Management showed remarkable visibility with 21 publications averaging 15.05 citations each, highlighting its strong relevance in healthcare-related research. Sustainability (Switzerland) and Frontiers in Psychology followed, with average citations of 13.38 and 12.34 per paper, respectively. Notably, Frontiers in Psychology produced the largest volume of work (87 publications), reinforcing its dual role as both the most productive and among the most impactful outlets. Current Psychology also performed strongly, with 61 publications averaging 10.82 citations each. Other journals in the top 10 demonstrated moderate influence: Frontiers in Public Health (9.44 citations per paper), Behavioral Sciences (5.13), BMC Nursing (4.97), and BMC Psychology (3.06). In contrast, Social Behavior and Personality, while contributing 18 publications, had the lowest citation rate (2.28), indicating limited impact despite its productivity.

Taken together, these findings suggest that while psychology-oriented journals dominate in terms of both volume and visibility, health-related and multidisciplinary journals such as the Journal of Nursing Management and the International Journal of Environmental Research and Public Health have emerged as high-impact publication platforms within the global work engagement literature.

Table 5. Top 10 Most Productive Journals

Source Title	TP	NCP	TC	C/P	C/CP	*h*	*g*	*M*
Frontiers in Psychology	87	78	1074	12.34	13.77	18	27	4.500
Current Psychology	61	48	660	10.82	13.75	14	24	3.500
Sustainability (Switzerland)	37	36	495	13.38	13.75	14	21	3.500
International Journal of Environmental Research and Public Health	32	32	500	15.63	15.63	13	21	3.250
BMC Nursing	29	19	144	4.97	7.58	7	11	2.333
Behavioral Sciences	23	16	118	5.13	7.38	6	10	1.500
Journal of Nursing Management	21	18	316	15.05	17.56	12	17	3.000
Social Behavior and Personality	18	15	41	2.28	2.73	3	4	0.750
Frontiers in Public Health	18	15	170	9.44	11.33	7	12	1.750
BMC Psychology	18	11	55	3.06	5.00	4	7	1.000

Note: TP=total number of publications; NCA=number of contributing authors; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; g=g-index; m=m-index.

Figure 2. Top 10 Most Productive Journals

iii. Most Productive Institutions in Global Context

Table :4 and figure :3 presents the bibliometric analysis shows that Jadara University is the topmost productive institution, contributing eight publications that have received 82 citations, with an h-index of 4. Universitas Padjadjaran ranks next with five publications, though only one paper has been cited, accumulating two citations. Bina Nusantara University follows with four publications but no citations. In Malaysia, Universiti Malaysia Terengganu demonstrates strong impact with three publications that collectively received 64 citations, averaging 21.33 citations per paper, and an h-index of 3. Universiti Kebangsaan Malaysia also contributes three publications, cited 15 times, with an h-index of 2. Meanwhile, the University of Antwerp presents three publications with modest citation counts, totaling five. Institutions such as Universiti Sains Malaysia, Irbid National University, and Amman Arab University each contributed two publications, with citation counts ranging from four to nine and an h-index of 1.

Table 4. Institution wise Publications

Institutions	TP	NCA	NCP	TC	C/P	C/CP	*H*	*g*	*M*
Jadara University	8	8	5	82	10.25	16.40	4	8	0.667
Universitas Padjadjaran	5	5	1	2	0.40	2.00	1	1	0.100
Bina Nusantara University	4	4	0	0	0.00	0.00	0	0	0.000
Universiti Malaysia Terengganu	3	3	3	64	21.33	21.33	3	3	0.214
Universiti Kebangsaan Malaysia	3	3	3	15	5.00	5.00	2	3	0.400
University of Antwerp	3	3	3	5	1.67	1.67	1	2	0.083
Universiti Sains Malaysia	2	2	1	4	2.00	4.00	1	2	0.250
Irbid National University	2	2	1	4	2.00	4.00	1	2	0.250
Amman Arab University	2	2	1	9	4.50	9.00	1	2	0.143

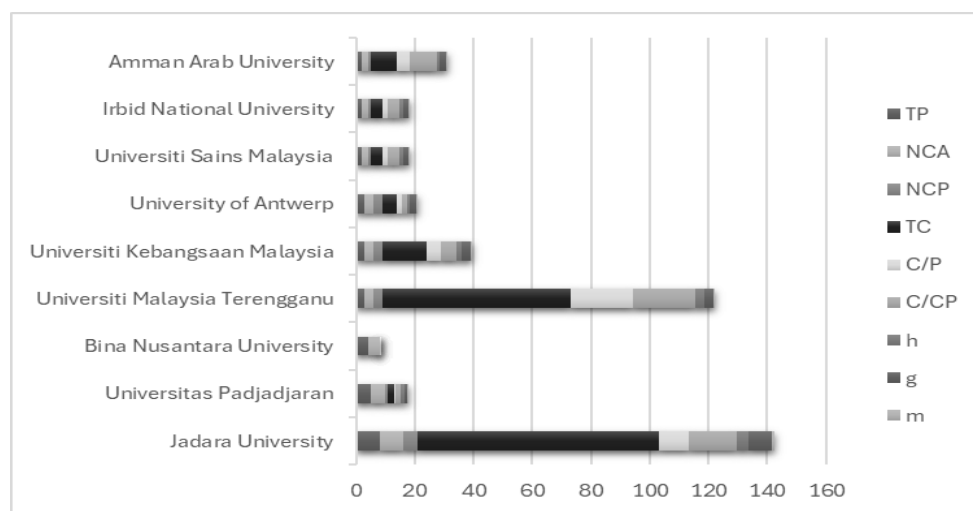Source: Generated by the author(s) using biblioMagika® (Ahmi, 2024)

Figure 3. Institution wise Publications

iv. Topmost Productive Countries

Table: 6 and in figure:4 presents the top contributing countries in the global context of work engagement research. The United States leads with 1,328 publications, reflecting its strong research base and continuous interest in workplace studies. Spain follows with 422 publications, while the United Kingdom ranks third with 368 publications, supported by active research networks. China contributes 318 publications, highlighting the growing attention to work engagement in Asia. The Netherlands (266), Australia (262), Finland (173), Germany (168), South Africa (155), and Italy (144) also feature prominently in the ranking. These results indicate that Western and developed countries dominate the research landscape, although the presence of China and South Africa points to increasing contributions from other regions as well.

Table 6. Topmost countries contributed to the publications

Country	TP	NCA	NCP	TC	C/P	C/CP	h	g	M
Indonesia	51	51	25	145	2.84	5.80	7	12	0.412
United States	24	24	19	316	13.17	16.63	9	17	0.176
Jordan	16	16	9	102	6.38	11.33	5	10	0.714
China	11	11	8	20	1.82	2.50	2	4	0.125
Malaysia	11	11	9	90	8.18	10.00	5	9	0.357
Australia	10	10	10	99	9.90	9.90	5	9	0.132
United Kingdom	9	9	9	249	27.67	27.67	8	9	0.222
Turkey	7	7	3	14	2.00	4.67	2	3	0.133
Italy	6	6	5	20	3.33	4.00	3	4	0.188
Romania	5	5	3	13	2.60	4.33	2	3	0.133

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DECLARATION OF AI USE

During the preparation of this work, the author(s) used Google Gemini to enhance the clarity of the writing. After using the Google Gemini, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

REFERENCES

Ahmi, A., & Mohd Herry Mohd Nasir. (2019). Examining the Trend of the Research on eXtensible Business Reporting Language (XBRL): A Bibliometric Review. *International Journal of Innovation, Creativity and Change. 5*(2), 1145–1167. https://ssrn.com/abstract=3839843

Boubker, O. (2024). From chatting to self-educating: Can AI tools boost student learning outcomes? *Expert Systems with Applications*, *238*. https://doi.org/10.1016/j.eswa.2023.121820

Cascajares, M., Alcayde, A., Salmerón-Manzano, E., & Manzano-Agugliaro, F. (2021). The bibliometric literature on scopus and wos: The medicine and environmental sciences categories as case of study. *International Journal of Environmental Research and Public Health*, *18*(11). https://doi.org/10.3390/ijerph18115851

Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education*, *20*(1). https://doi.org/10.1186/s41239-023-00411-8

Chiu, T. K. F. (2024). Future research recommendations for transforming higher education with generative AI. *Computers and Education: Artificial Intelligence*, *6*. https://doi.org/10.1016/j.caeai.2023.100197

Dai, W., Lin, J., Jin, F., Li, T., Tsai, Y.-S., Gaševi´gaševi´c, D., & Chen, G. (2023). Can Large Language Models Provide Feedback to Students? A Case Study on ChatGPT. *IEEE International Conference on Advanced Learning Technologies (ICALT), Orem, UT, USA*, 323–325. https://doi.org/10.1109/ICALT58122.2023.00100.

Faqih, K. M. S. (2022). Investigating the adoption of an innovation using an extended UTAUT model: The case of mobile learning technology. *Journal of Theoretical and Applied Information Technology*, *100*(17), 5600–5625.

Fernández-Batanero, J. M., Montenegro-Rueda, M., Fernández-Cerero, J., & García-Martínez, I. (2022). Assistive technology for the inclusion of students with disabilities: a systematic review. *Educational Technology Research and Development*, *70*(5), 1911–1930. https://doi.org/10.1007/s11423-022-10127-7

Gayed, J. M., Carlon, M. K. J., Oriola, A. M., & Cross, J. S. (2022). Exploring an AI-based writing Assistant's impact on English language learners. *Computers and Education: Artificial Intelligence*, *3*. https://doi.org/10.1016/j.caeai.2022.100055

Harzing, A.-W, & Alankangas, S. (2015). *Google Scholar, Scopus and the Web of Science: A longitudinal and cross-disciplinary comparison*. 1–19. https://harzing.com/download/gsscowos.pdf

Ismail, F., Tan, E., Rudolph, J., Crawford, J., & Tan, S. (2023). Artificial intelligence in higher education. A protocol paper for a systematic literature review. *Journal of Applied Learning and Teaching*, *6*(2), 56–63. https://doi.org/10.37074/jalt.2023.6.2.34

Izhar, N. A., Ishak, N. A., & Baharudin, S. M. (2023). A Bibliometric Analysis of 21st Century Learning Using Scopus Database. *International Journal of Learning, Teaching and Educational Research*, *22*(3), 225–240. https://doi.org/10.26803/ijlter.22.3.14

Jain, K., & Raghuram, J. N. V. (2024). Unlocking potential: The impact of AI on education technology. In *Multidisciplinary Reviews* (Vol. 7, Issue 3). Malque Publishing. https://doi.org/10.31893/multirev.2024049

Knight, S., Dickson-Deane, C., Heggart, K., Kozanoğlu, D. C., Maher, D., Narayan, B., & Zarrabi, F. (2023). Generative AI in the Australian education system: An open data set of stakeholder recommendations and emerging analysis from a public inquiry. *Australasian Journal of Educational Technology*, *39*(5), 101–124. https://doi.org/https://doi.org/10.14742/ajet.8922

Li, H.-F. (2023). Effects of a ChatGPT-based flipped learning guiding approach on learners' courseware project performances and perceptions. *Australasian Journal of Educational Technology*, *39*(5), 40–58. https://doi.org/https://doi.org/10.14742/ajet.8923

Marzuki, Widiati, U., Rusdin, D., Darwin, & Indrawati, I. (2023). The impact of AI writing tools on the content and organization of students' writing: EFL teachers' perspective. *Cogent Education*, *10*(2). https://doi.org/10.1080/2331186X.2023.2236469

Matthews, J., & Volpe, C. R. (2023). Academics' perceptions of ChatGPT-generated written outputs: A practical application of Turing's Imitation Game. *Australasian Journal of Educational Technology*, *39*(5), 82–100. https://doi.org/https://doi.org/10.14742/ajet.8896

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & Group, P. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *Annals of Internal Medicine*, *151*(4), 264–269. https://doi.org/10.7326/0003-4819-151-4-200908180-00135

Nguyen Thanh, B., Thi Hong Vo, D., Nguyen Nhat, M., Thu Tra Pham, T., Thai Trung, H., & Ha Xuan, S. (2023). Race with the machines: Assessing the capability of generative AI in solving authentic assessments. *Australasian Journal of Educational Technology*, *39*(5), 59–81. https://doi.org/https://doi.org/10.14742/ajet.8902

Pham, T., Nguyen, B., Ha, S., & Nguyen Ngoc, T. (2023). Digital transformation in engineering education: Exploring the potential of AI-assisted learning. *Australasian Journal of Educational Technology*, *2023*(5), 1–19. https://doi.org/https://doi.org/10.14742/ajet.8825

Pillai, R., Sivathanu, B., Metri, B., & Kaushik, N. (2024). Students' adoption of AI-based teacher-bots (T-bots) for learning in higher education. *Information Technology and People*, *37*(1), 328–355. https://doi.org/10.1108/ITP-02-2021-0152

Ray, S. S., Peddinti, P. R. T., Verma, R. K., Puppala, H., Kim, B., Singh, A., & Kwon, Y. N. (2024). Leveraging ChatGPT and Bard: What does it convey for water treatment/desalination and harvesting sectors? *Desalination*, *570*. https://doi.org/10.1016/j.desal.2023.117085

Razack, H. I. A., Mathew, S. T., Saad, F. F. A., & Alqahtani, S. A. (2021). Artificial intelligence-assisted tools for redefining the communication landscape of the scholarly world. *Science Editing*, *8*(2), 134–144. https://doi.org/10.6087/kcse.244

Santiago, C. S., Embang, S. I., Acanto, R. B., Ambojia, K. W. P., Aperocho, M. D. B., Balilo, B. B., Cahapin, E. L., Conlu, M. T. N., Lausa, S. M., Laput, E. Y., Malabag, B. A., Paderes, J. J., & Romasanta, J. K. N. (2023). Utilization of Writing Assistance Tools in Research in Selected Higher Learning Institutions in the Philippines: A Text Mining Analysis. *International Journal of Learning, Teaching and Educational Research*, *20*(11), 259–284. https://doi.org/10.26803/ijlter.22.11.14

Tang, A., Li, K. K., Kwok, K. O., Cao, L., Luong, S., & Tam, W. (2023). The importance of transparency: Declaring the use of generative artificial intelligence (AI) in academic writing. In *Journal of Nursing Scholarship*. John Wiley and Sons Inc. https://doi.org/10.1111/jnu.12938

Thompson, K., Corrin, L., & Lodge, J. M. (2023). AI in tertiary education: progress on research and practice. *Australasian Journal of Educational Technology*, *39*(5), 1–7. https://doi.org/https://doi.org/10.14742/ajet.9251

Van Eck, N. J., & Waltman, L. (2014). Visualizing Bibliometric Networks. In *Measuring Scholarly Impact* (pp. 285–320). Springer International Publishing. https://doi.org/10.1007/978-3-319-10377-8_13