Changes and Current Trends in Higher Education in Management and Allied Disciplines: A Bibliometric Study

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ABSTRACT Changes in the higher education domain are essential for the enhancement of the future generation. It must be embraced successfully to face the dynamics and accept new developments with their inherent outcomes. Sustaining changes will equip policymakers to understand the wheel of knowledge central to success. This domain has undergone many changes recently due to multiple global events. Using bibliometric analysis, authors tried to understand these changes in management and allied fields by extracting 2503 documents from the Scopus database from January 2020 to April 2023. Studies in Higher Education and International Journal of Sustainability in Higher Education are the most prominent sources. Mishra L, Gupta T, and Shree A are the highest-cited authors. Braun, Marginson, and Bourdieu are the most co-cited authors. Change management, online collaborative learning, and digital competence are the themes that emerged from thematic analysis. The results of this study are significant in decision-making for scholars, researchers, policymakers, and institutions in the higher education sector.

INTRODUCTION

"Human activities become better with the perfection of knowledge" (Prabhupada 1972). The higher education world is witnessing sweeping changes with increasing enrolments, student mobility, diversity of provision, research dynamics, and technology (UNESCO 2023). Emergency remote teaching (Hodges and Fowler 2020), online learning (Mishra et al. 2020), technology-enabled teaching-learning (Adhya and Panda 2022; Sundgren et al. 2023), teacher-centred/learner-centred pedagogy (McCowan et al. 2022; Parejo et al. 2022; Tuhkala 2021), changing curriculum (Annala et al. 2022) are synonymous with the current times.

Existing literatures are mostly focused on online education and e-learning, blended learning during the pandemic (Liu et al. 2021; Pham et al. 2020; Eli-Chukwu et al. 2023; Raza et al. 2022; Gao et al. 2022; Naim 2022; Fauzi 2022; Makruf et al. 2022; Corcoran 2022; Wahyuningsih and Afandi 2023). Studies that consider the holistic aspects of changes taking place in higher education, specifically in the management and its allied domain, are needed to understand this domain better but are currently unavailable in existing literature, which is the motivating factor for this study.

Initiatives toward successful implementation of changes require strong leadership, acceptance at all levels, perennial funding, support from all stakeholders, and compliance with ethical values. Innovations in education have received scant attention, as change or crisis management was considered the focus area for corporates alone (Ferreira et al. 2018). As a result, the literature on change management in education is lacking. Also, the previous changes are restricted to a few geographical pockets that demanded solutions only at the national or regional levels rather than global. Disruptions, as in the current times, are more demanding in terms of adaptability among all stakeholders at the global level, which can give new knowledge and management thoughts to enrich and enhance the field of higher education, equipping them with tools needed to manage crises, challenges, and changes across multiple dimensions (Ratten 2020).

Digital literacy and digital skills have become an essential element of the higher education environment. Studies of this nature can help policy-

makers to understand critically important changes, and can help them to develop suitable and time-bound frameworks. Consolidating upon the major areas of change in higher education will help institutions to implement necessary changes and modifications in a phased manner, without putting undue pressure on their budgets and fund flows. This research aims to understand the changes in the higher education field in the management and allied domain and inform on the research trends by detecting publication sources, authors, countries, and institutions using a scientific approach.

Data from January 2020 to April 2023 was utilised for the study. The reason is, in this period, the higher education field witnessed exorbitant changes due to multiple global happenings due to the global pandemic (Dubey and Pandey 2020; Coman et al. 2020; Toquero 2020; Arora and Srinivasan 2020), which necessitated heavy dependency on technology-enabled online learning, new-normal (Rapanta et al. 2021; Murphy 2020; Keshavarz 2020; Tsiligkiris and Ilieva 2022), Russia-Ukraine war (Sokol and Melko 2022; Oleksiyenko et al. 2021; Altbach and de Wit 2022), students' migration (Marom 2023; Brunner 2022; Waters and Brooks 2021), recession and economic slowdown (Martin and Dwyer 2021; Kelchen et al. 2021), employability challenges (Belchior-Rocha et al. 2022; Fakunle and Higson 2021; Rees 2021), learning divides (Laufer et al. 2021; Rahman 2021; Li et al. 2022), stakeholders' satisfaction (Varadarajan et al. 2023) and other current challenges (Horta 2023; Shomotova and Karabchuk 2022).

The outcomes of this study can create a unique and alternative vision that can guide future research on teaching-learning, student engagement, curriculum, and pedagogy development in higher education in the management and allied domain in a more holistic manner. Research query includes:

RQ1: What is the overall bibliometric information with respect to changes in higher education?

RQ2: Which are the most cited sources, journals, authors, countries, references, and trend topics?

RQ3: What can be the future scope of research in higher education?

By answering the above research questions, the researchers can demonstrate diversities, dimensions, and decision-making processes in the management and allied domain with a global perspective among all stakeholders using bibliometric analysis to advance the research. The researchers framed the following research objectives that can answer the above questions.

Research Objectives

1. To analyse the bibliometric information by identifying the most cited sources, journals, authors, countries, and references.
2. To identify the current trend topics and future scope and direction of research in this area of study.

Bibliometric information for changes in higher education has been analysed using Biblioshiny, a web-based interface for bibliometric analysis that includes analytics, plots for sources, authors, documents, and analysis of conceptual, intellectual, and social structures (Aria and Cuccurullo 2017).

Literature Review

Radical shifts in higher education in the last few years have led to profound new experiences resulting in enthusiasm and stress (Bruggeman et al. 2022). Emergency remote teaching (Hodges and Fowler 2020), remote learning (Thompson and Copeland 2020), online learning (Zhang et al. 2022), modified academic delivery (Khan et al. 2021), increase in student mobility (Glass and Cruz 2023), interruptions to education (Shahzad et al. 2021), equal participation (Wilkens et al. 2021) formed part of higher education landscape since 2020. Higher education is witnessing the harmonious integration of physical and digital methods, and tools, resulting in active, flexible, and meaningful learning (Rapanta et al. 2020).

Digitisation got scaled up during the pandemic (Garcez et al. 2022), which ensured students retention, self-phased learning (Garg et al. 2022), maintained teaching standards (Pozas et al. 2022) and enhanced teacher and student competence (Dervenis et al. 2022). Artificial intelligence (Chatterjee and Bhattacharjee 2020), ePortfolio (Roco and Barberà 2022), flipped classroom (Santos and Serpa 2020), MOOCs (Rizvi et al. 2022; Raffaghelli et al. 2015), and Moodle (Basantes-Andrade et al. 2022) provided formal learning environment and ensured continuous learning, critical thinking (Riofrío-Calderón and Ramírez-Montoya 2022), leading to knowledge and skill development (Rizvi et al. 2022; Basantes-Andrade et al. 2022). Hybrid learning management systems made digital transformation

smoother (Phan et al. 2022), prevented shortfalls in educational rights (Fauzi 2022), gave hope, and enhanced the academic world (Rodrigues et al. 2021).

To create flexible pedagogy that can fit across different learning modules, teachers needed training, tutorials (Le Vo 2021), and digital tools (Pratiwi and Waluyo 2023). Online Faculty Professional Development was extensively researched to understand, identify and bridge the skill gaps of teachers. Flexibility with self-paced schedules was successful for faculty professional development (Nourshahi 2023).

Crompton et al. (2021) indicated that technology and strategy were successfully used to face emerging challenges and create new opportunities. At the same time, online learning gave rise to new areas of challenges for students like fatigue, disengagement, restricted access, integration of synchronous/asynchronous learning tools, digital competence, privacy, confidentiality, academic dishonesty, and mental health issues (Abu Talib et al. 2021; Adedoyin and Soykan 2023). Measures taken towards equity, social justice, and resilience in the education system (Portillo et al. 2020) in accordance with the changing situations (Torres-Caceres et al. 2022) can ensure effectiveness and competency (Azorín 2020). Digital divides must be bridged by training in digital skills (Schina et al. 2020). More research is needed on assessment quality, supporting infrastructure (Brika et al. 2021), openness to change and innovation, and promoting performance and productivity, ultimately leading to stakeholders' satisfaction (Sauphayana 2021).

METHODOLOGY

Search Procedure and Filters Applied

Data was extracted from the Scopus database using search strings like "higher education" and "changes", "changes" or "higher education", ("change*") and ("higher education*") ("change*") or ("higher education*") following the Boolean principle. Data from January 2020 to April 2023 were extracted, wherein 7,863 documents were identified and extracted and refined using the PRISMA strategy. The researchers applied filters for language to be "English", paper type to be "Final", and subject areas selected are "Social Sciences", "Business Management and Accounts", "Arts and Humanities", "Economics, Econometrics and Finance" and "Multidisciplinary", and source type

was "Journal". After applying filters and screening for duplicates, 2,503 documents were finalised for the bibliometric analysis. The main information about the data is given in Table 1.

Table 1: Main information about the data

Description	Results
Main Information About Data	
Timespan	2020:2023
Sources (Journals, Books, etc.)	923
Documents	2503
Annual growth rate in percentage	-29.84
Document average age	1.77
Average citations per document	4.659
References	117434
Document Contents	
Keywords plus (ID)	0
Author's keywords (DE)	6731
Authors	
Authors	6537
Authors of single-authored docs	604
Authors Collaboration	
Single-authored docs	619
Co-authors per doc	2.8
International co-authorships percentage	16.58
Document Types	
Paper	2503

Source: Authors
Prepared on 30 April 2023 from 3:00 to 5:00 PM

RESULTS

The analysis is divided into two divisions. Firstly, the researchers did the analysis of level metrics, which includes sources, authors and documents. Secondly, an analysis of the structure of knowledge was done, which includes conceptual, social and intellectual structure. Annual scientific production was the highest in 2022 with 800 documents, which is the highest in the study period, followed by 768 in 2021 and 695 in 2020. From January to April 2023, 240 documents were published. Highest mean total citations per year is 2.79 in 2020. Three-field plot shown in Figure 1 indicates the flow of connections and interrelation of authors, sources and keywords from the connecting nodes in a Sankey diagram (Munim et al. 2020).

As per the three-field plot, two journals titled-Studies in Higher Education and Frontiers in Education, five authors, namely, Prof. David Boud, Gwilym Croucher, Sydney Freeman Jr, Badri Munir Sukoco, Anne Campbell- and three keywords of higher education, leadership and neoliberalism
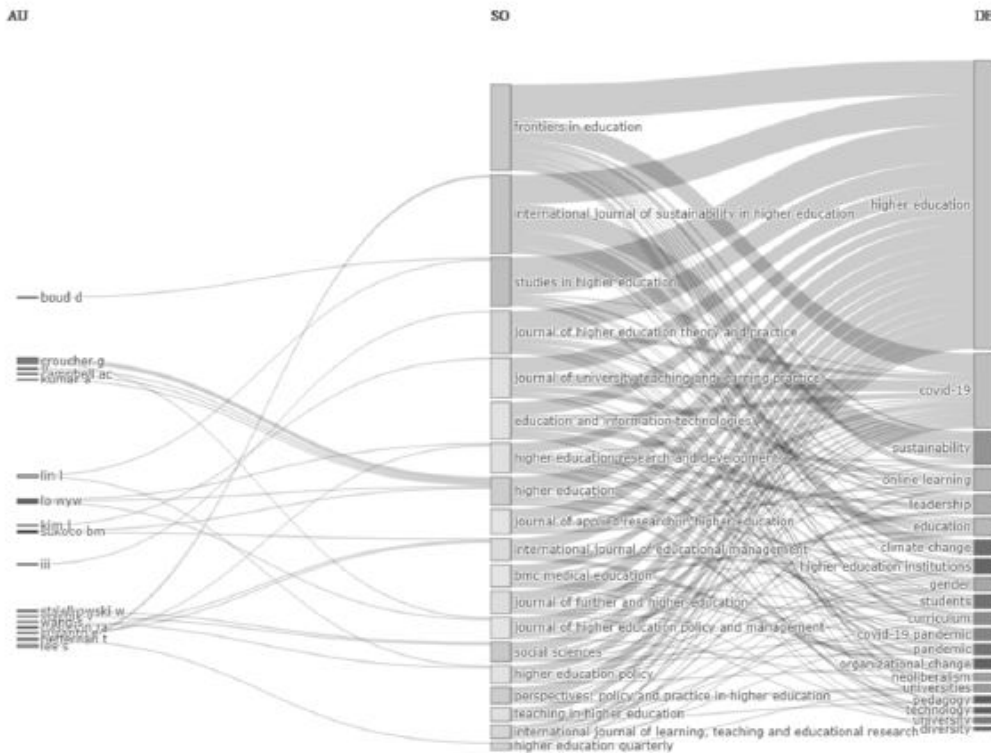
Fig.1. Three-field plot of authors, sources and keywords
Source: Authors
Prepared on 30 April 2023 from 3:00 to 5:00 PM

show strong interactions. Prof. David Boud of Deakin University contributed 17 documents for "Studies in Higher Education". His paper titled, "Promoting Reflection in Professional Courses: The Challenge of Context", has received 506 Scopus citations. Gwilym Croucher from University of Melbourne has contributed four documents to "Higher Education", his work titled, "Institutional isomorphism and the creation of the unified national system of higher education in Australia: an empirical analysis", received 40 citations in Scopus. Sydney Freeman Jr of University of Idaho, Badri Munir Sukoco of University of Airlangga, Anne C. Campbell from Middlebury Institute of International Studies at Monterey have each contributed one paper to the journal "Higher Education". Higher education was the most prominent keyword from the four authors' contributions. The journal "Frontiers in Education" has a strong connection with keywords COVID-19, sustainability, online learning, leadership, education, curriculum, gender and neoliberalism.

Sources, Documents and Authors

Studies in Higher Education is the most prominent journal with 56 documents, followed by 53 documents from International Journal of Sustainability in Higher Education, and 50 from Frontiers in Education. Pierre Bourdieu and Simon Marginson are the highest-cited single authors. Pierre Bourdieu, College de France got the highest citation with 209 citations. Bourdieu occupies a huge space with his contributions. His earlier paper titled, "The Social Space and the Genesis of Groups" published in 1985 received 1436 Scopus citations. Simon Marginson of University of Oxford received 167 citations, followed by Edith M. P. Braun of International Centre for Higher Education Research, Kassel.

The collaborative work of three authors titled as, "Online Teaching Learning in Higher Education During the Lockdown Period of COVID-19 Pandemic" was the highest globally cited document with 665 citations. Loknath Mishra, Tushar Gupta and Abha Shree (Mishra et al. 2020) from the Faculty Development Centre, Department of Education, Mizoram University, India, are the authors. This document received 739 Scopus citations, as on 14 July 2023. This paper is one of the seminal papers that describes how to effectively transform and implement online teaching learning strategies from qualitative and quantitative perspectives. "Influence of COVID-19 Confinement on Students' Performance in Higher Education" is the second highest globally cited document with 360 citations. In this paper using experiments, the authors assess the performance of two groups of students, and results indicate that COVID-19 changed students' learning strategies (Gonzalez et al. 2020). Top ten globally most cited documents list with their contributions are given in Table 2.

Country-Wise Scientific Production

The United States of America (USA) has the highest productivity and citations to the tune of 1275 and 1791 respectively, indicating that authors in the USA are doing proactive research. They are followed by the United Kingdom with 672 papers and 1340 citations. Australia comes third with 527 publications. In terms of citations, India occupies third place with 974 total citations (Table 3).

Table 3: Most cited countries

Country	TC	Average paper citations
USA	1791	4.52
United Kingdom	1340	5.75
India	974	15.71
Australia	856	5.86
Spain	786	9.47
Canada	398	6.32
China	345	5.00
Germany	249	4.22
Hong Kong	220	5.79
Ireland	208	6.30

Source: Authors
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Trend Topics and Keywords

To identify the current research, frequency of keywords is analysed, as seen in Table 4 it indi-

cates that the landscape of higher education is shaped by leadership, neoliberalism and gender.

Table 4: Trend topics based on keywords

Words	Occurrences
Higher Education	846
COVID-19	190
Education	60
Online Learning	59
Leadership	42
Gender	40
Neoliberalism	38
Universities	38
Sustainability	36
Curriculum	35

Source: Authors
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Conceptual Structure

The conceptual structure identifies future research trends by understanding the connections between various concepts in the literature (Akter et al. 2021) that also helps to identify the interaction.

Co-occurrence Network

A co-occurrence network indicates a connection among the same terms in specific collections, as seen in Figure 2. Four different groups indicate different levels of associations and occurrences. The first group concentrates on the central keyword of 'higher education' is surrounded by keywords like change management, action research, curriculum, employability, evaluation, teacher education, sustainability, quality assurance. The second group concentrating on the central keyword of 'COVID-19' has a co-occurrence with words like pandemic, students, online learning, blended learning, higher education institutions, distance learning. The third group indicates keywords like pedagogy, diversity, stem, equity. Finally, the fourth indicates India, China and university.

Thematic Map

With the help of thematic analysis one can quantify the thematic evolution of research in a specific field. Themes are plotted based on their centrality and density ranks (Cobo et al. 2011). Table 5 provides a description of the thematic analysis with 250 keywords of authors with minimum

Table 2: Most globally cited documents

Authors	Title	Source	Total citations	Highlights
Mishra et al. 2020	Online teaching-learning in higher education during lockdown period of COVID-19 pandemic	*International Journal of Educational Research Open*	665	Perception of online teaching learning implementation process with existing resources
Gonzalez et al. 2020	Influence of COVID-19 confinement on students' performance in higher education	*PLOS ONE*	360	Using field experiments, this study analyses the autonomous learning of students during COVID-19 confinement
Neuwirth et al. 2021	Reimagining higher education during and post-COVID-19: Challenges and opportunities	*Journal of Adult Continuing Education*	130	The study prepared series of propositions for synchronous and asynchronous virtual classroom learning post pandemic
Zalat et al. 2021	The experiences, challenges, and acceptance of e-learning as a tool for teaching during the COVID-19 pandemic among university medical staff	*PLOS ONE*	130	Identified the perceptions, experience, barriers, challenges of e-learning during pandemic
Quezada et al. 2020	From Bricks and Mortar to Remote Teaching: A Teacher Education Program's Response to COVID-19	*Journal of Education Technology*	128	A qualitative study about responses of teachers about face to face online teaching during pandemic
De Wit and Altbach 2021	Internationalisation in higher education: Global trends and recommendations for its future	*Policy Reviews in Higher Education*	130	Explores historical facts, key factors, impacts of internationalisation of higher education
Ratten 2020	Coronavirus (COVID-19) and the entrepreneurship education community	*Journal of Enterprising Communities: People and Places in the Global Economy*	97	Reviews on COVID-19 and entrepreneurship education
Oliveira et al. 2021	An exploratory study on the emergency remote education experience of higher education students and teachers during the COVID-19 pandemic.	*British Journal of Education Technology*	86	Studies the mediating role of technology using semi-structured interview with thematic analysis
Chatterjee and Bhattacharjee 2020	Adoption of artificial intelligence in higher education: A quantitative analysis using structural equation modelling	*Education Information Technology*	77	Adoption of AI in higher education
Oke and Fernandes 2020	Innovations in Teaching and Learning: Exploring the Perceptions of the Education Sector on the 4th Industrial Revolution (4IR)	*Journal of Open Innovation: Technology, Market, and Complexity*	75	Role of technology, readiness to 4IR in education

Source: Authors
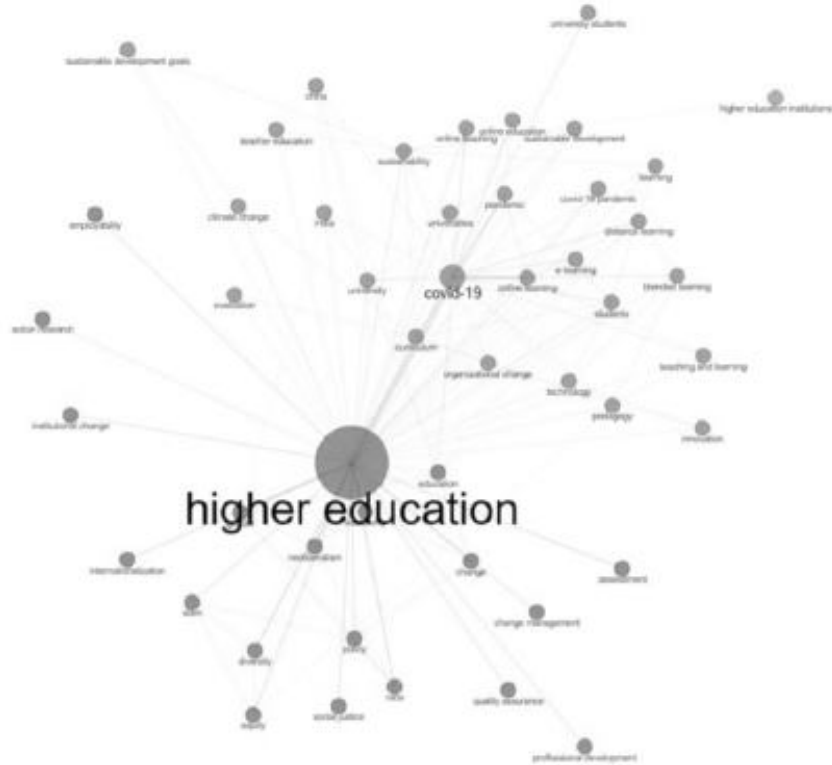Prepared on 30 April 2023 from 3:00 to 5:00 PM

Fig. 2. Co-occurrence network and authors' keywords
Source: Authors
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cluster frequency of five. As per the data given in Table 5, the themes "leadership", "university", and "organisational change" are the motor theme, having strong centrality and density, important for structuring this research field. Themes "action research", and "critical thinking" are niche themes, which are of marginal importance but well developed internally with weak external connections. Themes "higher education policy" is an emerging or declining theme having low centrality, density and are weakly developed. Themes "gender", "neoliberalism", "diversity" indicate both motor and niche themes. Themes "climate change", "sustainable development goals", "teacher training" are niche and emerging/declining themes. The basic themes include "COVID-19", "online learning",

"higher education", and "universities", which are important themes considering this research.

Thematic Evolution

Thematic evolution uses performance analysis and scientific mapping for identifying themes and sub-themes dividing the time frame into different time periods (Chen et al. 2019), as shown in Table 6. The researchers have consolidated the words under each theme by replacing a common theme name.

Intellectual Structure

Intellectual structure reflects the evolving changes and contributions of the inter-relation-

Table 5: Thematic map of authors' keywords

Occurrences	Words	Cluster	Cluster label	Between centrality	Close centrality	Page rank centrality
29	climate change	1	climate change	384.7501775	0.001831502	0.006656617
17	sustainable development goals	1	climate change	87.50391687	0.001477105	0.003161577
12	teacher training	1	climate change	138.8790422	0.001564945	0.002776291
845	higher education	2	higher education	1639.659384	0.001964637	0.148666132
60	education	2	higher education	1505.378854	0.002114165	0.012481353
38	universities	2	higher education	926.5300941	0.002024291	0.007205518
35	sustainability	2	higher education	618.7463602	0.001926782	0.009252937
35	curriculum	2	higher education	1141.328287	0.002040816	0.009347966
27	higher education institutions	2	higher education	363.4789509	0.001901141	0.004030724
27	technology	2	higher education	610.2115353	0.001945525	0.008203073

Source: Authors
Prepared on 30 April 2023 from 3:00 to 5:00 PM

Table 6: Thematic evolution - themes generated across 3 different time slices

Time slice	Basic themes	Emerging/ Declining themes	Niche themes	Motor themes
3(2022)	Change Management	Policy and Innovation	Employability and Sustainability	Blended Learning
2(2021)	Higher Education	Technology	Digital Technology	Online Collaborative Learning
1(2020)	COVID-19 Pandemic	Curriculum and Pedagogy	Professional Development and Training	Digital Competence for Educators

Source: Authors
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ship between different authors, papers and sources (Forliano et al. 2021), through co-citation analysis (Jeong et al. 2014).

Co-citation Network Analysis

When two documents appear together in the reference section of the third document, they are said to be co-cited, the more such citations, the stronger is their relationship (Ruggeri et al. 2019). Co-citation, which measures the degree of relationship between papers as per the perception of the citing authors, is established by citing authors where the patterns can change over time based on the changes in the interest and intellectual patterns (Small 1973), maps the research structure. Using the Louvain clustering algorithm (Blondel et al. 2008) co-citation networks of authors, sources and paper were identified. The co-cited papers in these clusters share a common theme representing the core knowledge (Ruggeri et al. 2019). Rank-

ing the betweenness, a centrality measure in co-citation network analysis, can reflect the importance of the degree of citations (Lin et al. 2009), as mentioned in Table 7.

Table 7 : Co-citation network of authors, sources, papers

	Authors	Sources	Papers
1	Braun E	Marginson S	Braun V
2	Marginson S	Altbach P.G.	Bourdieu P
3	Bourdieu P	Braun V	Bourdieu P

Source: Authors
Prepared on 30 April 2023 from 3:00 to 5:00 PM

From Table 7 it can be understood that Professor Braun, Professor Marginson, and Professor Bourdieu are the most co-cited authors as per the betweenness measure of centrality. Professor Braun's contributions include evaluation (Braun and Leidner 2009), evaluation instruments (Braun et al. 2008), evaluation feedback (Nowakowski et

al. 2012), higher education and labour market (Braun and Brachem 2015), competency (Brachem and Braun 2018), student engagement (Muller and Braun 2018; Salas-Pilco et al. 2022) performance-based assessments (Falkenstern et al. 2020), and skills in higher education (Hyytinen et al. 2023). Professor Braun's paper titled, "The Berlin evaluation instrument for self-evaluated student competences" is the highest co-cited paper with 70 citations. Professor Marginson's paper titled, "Dynamics of national and global competition in higher education" (Marginson 2006) received 662 citations. His highly cited contributions are in higher education institutions (Marginson and Rhoades 2002), public private divide (Marginson 2007), and global ranking (Marginson and Van der Wende 2007 a and b). Professor Bourdieu, being a sociologist, contributed to the sociology of education, dynamics of power, cultural studies and populism. His papers titled, "The social space and the genesis of groups" and "The economics of linguistic exchange", received 1438 and 1128 co-citations respectively (Bourdieu 1977, 1985).

DISCUSSION

Bibliometric information on changes in higher education indicates that publications in this field are increasing globally. Drastic changes in higher education from 2020 are shaping and re-shaping the structure. Pandemic-induced changes necessitated learning online, as a result of which the publications on online teaching learning are the highest. Of the total documents, 89 publications have "online" in their title, of which 49 are on online learning, 16 are on online teaching, and 5 on online assessments. Digital resistances, teaching and learning innovations, competencies, perceptions, control, traits, motivations, challenges, burnouts were some of the prominent topics that emerged. Online learning and online collaborative learning are major themes that emerged from thematic evolution generated across three time slices. These themes match with the studies conducted by Fauzi (2022) and Mishra et al. (2020). Six documents from the most cited sources, discussed online teaching learning (Mishra et al. 2020; Neuwirth et al. 2021; Zalat et al. 2021; Quezada et al. 2020; Oliveira et al. 2021; Chatterjee and Bhattacharjee 2020). Online learning is the fourth highest frequently used keyword. The United States of

America and the United Kingdom were the top three countries in terms of publications with India ranking third in terms of total citations. India, Indonesia, and war-torn Ukraine featured in the top ten countries in publications and citations. David Boud and Gwilym Croucher, are the most prominent single authors. Studies in Higher Education, International Journal of Sustainability in Higher Education and Frontiers in Education are the most prominent sources. Professor Braun, Professor Marginson and Professor Bourdieu are the most co-cited authors globally.

Online and digital learning is found to be prominently studied during and post pandemic period. However, Eli-Chukwu et al. (2023) observed that only brick and mortar mode of teaching was used during the pandemic, which is far from the real benefit of online or blended learning. Adedoyin and Soykan (2023) observed that online learning is not the same as emergency remote teaching, which is unsustainable. Pratiwi and Waluyo (2023) studied the importance of degree of autonomy and the use of multiple digital tools like Google Form etc. and proposed a learning model utilising digital technologies and autonomous learning concepts to improve Indonesian polytechnic students' learning outcomes. Sundgren et al. (2023) observed in his study the importance of disciplinary differences while planning for online or digital education and that of nurturing different presences, that is, cognitive, social, teaching with an inclusion of emotional presences. Thi et al. (2023) in a case study of Vietnamese students' intention on accepting digital education observed that there is a need to increase the quality of the digital transformation process through change in attitude. Trevisan et al. (2023) in their study of online teaching competency of teachers informed that institutional support was more important behind the intention to sustain the online teaching. On the other hand, Fynn and Walt (2023) found that high levels of burnouts were experienced by the teaching community, particularly the senior and well qualified teachers, perhaps indicating the inherent limitation of online teaching, which practically is difficult to completely overcome.

Quite in contrast to the emergent online education and various challenges associated with it, Hyytinen et al. (2023) in his study pointed out that the importance of generic skills, like collaboration, critical thinking, problem solving, and communica-

tion skills has gained momentum in educational policy in the past decade and is found to be related to development of one's expertise later in work life. Horta (2023) in his study related to eastern Asia observed that while there are the existing challenges of the need to increase equity and internationalisation, there are also some upcoming challenges of the need for consolidation and reform in higher education in line with the fourth industrial revolution besides the requirements of collaborative and sustainable research. Marom (2023) in a higher education study, highlighted another challenge of how admissions and market driven factors appear to challenge the educational considerations. Furthermore, Varadarajan et al. (2023) advocated yet another dimension of micro-credentials as a potential and needed disruption in the higher education sector but highlighted several challenges, which need to be met. Nourshahi (2023) in the study on development of teachers observed that successful teachers required better relationship, socialisation, and scientific interactions rather than teaching skills alone, which echoes with earlier research. Yang et al. (2022) in their study related to a university closure during the pandemic observed that students needed relatedness support from teachers among others so that they feel connected and thus it reduces their anxiety.

The hybrid mode is considered better, provided that pandemic induced challenges are turned into reality through training of students and teachers. On the similar lines, Hamzah et al. (2023) suggested to integrate community-based learning (CBL) into teaching, which is experiential in nature but informed based on his research that the requirement of training the students and teachers is essential to make it effective. Wahyuningsih and Afandi (2023) while suggesting the adoption of blended learning in English courses in their qualitative study highlighted that several challenges pertaining to teaching method, student motivation and quality of internet infrastructure needs to be ensured. Hansson (2021) in the study of teacher trainees of three countries also observed that students preferred and found the blended learning as more interesting and engaging as against only online or only offline.

Broadly, the focus areas of future research in higher education must be on enhancement of generic skills (Hyytinen et al. 2023), integrating community-based learning (Hamzah et al. 2023), stu-

dent motivation and engagement in blended and collaborative online learning (Wahyuningsih and Afandi 2023), pedagogical enhancement and learning innovations supported by learning management system (Trevisan et al. 2023), overcoming digital resistance (Eschmann 2021) building digital competence (Trevisan et al. 2023), staff burnouts (Fynn and Walt 2023), type of online interactions (Hodges and Fowler 2020), assessment instruments (Haryati et al. 2021), and students' motivation (Thi et al. 2023). However, several studies were conducted during the COVID-19 period raising questions on the dependability of those studies suggesting a need to further investigate on such findings now, in order to ensure that the factors and the framework for sustainable higher education are well founded. Furthermore, these studies belong to several parts of the world highlighting the differences in favourable to unfavourable factors operating in a particular region or country pertaining to the higher education sector. Portillo et al. (2020) in their study conducted in Basque country observed that policymakers need to reflect on the measures to be taken to further build equity, social justice and resilience in the education system indicating sustainability.

Taking forward the vision of Clark, Goren and Yemini on global citizenship (Clark 1983; Goren and Yemini 2017), the higher education sector must focus on three interacting plans of addressing global, national and local dimensions (Marginson and Rhoades 2002) for better changes in future. Given the complexity of the task of meaningfulness and sustainability in higher education, there is a need for global cooperation and mutually enabling higher education infrastructure to ensure uniform and inclusive hybrid or online education, which is based on a sound and holistic framework meaningful for all stakeholders.

CONCLUSION

The literature demonstrates that change and learning are inseparable, especially in higher education. The twenty-first century has witnessed profound changes in higher education that call for many fundamental shifts in knowledge acquisition and delivery, which is also reflected in the bibliometric analysis. From the thematic analysis, authors understand that online learning is most popular in the current times, which requires critical

thinking and action research, assuring quality and employability. Teacher competency, a theme emerged in the co-occurrence network and thematic evolution that takes centre stage since instructor competencies occupy a significant and essential role in synchronising with current developments. While bringing changes in higher education policies, institutions must follow a neoliberal approach, with ample room for incorporating gender equality and other sustainable development goals. An inclusive and holistic assessment framework is needed to understand the influence of knowledge and scores.

RECOMMENDATIONS

As change is constant, sustaining change in higher education depends on the learning environment at different levels. To successfully implement changes, one needs unbridled focus, commitment, and competent, skillful, and fearless personalities. The major outcome of this study is to understand current changes in higher education in management and related domains so that this field can better equip itself to face the future. An impact assessment of current changes is essential to understand the student's skills, teachers' experiences, and stakeholders' benefits. An analysis of the effectiveness of different learning modes among students with different learning abilities will give a better understanding of the pedagogies to be adopted, even though it is premature in the current times, as the students who enrolled in any higher education programmes will graduate at the end of 2023 and 2024. Studies on digital burnout with its implications are needed to understand digital hygiene. To overcome the digital divide, especially in emerging and underdeveloped economies, it is the duty and responsibility of government and stakeholders to provide physical, infrastructural, and technological provisions to learners. Teachers occupy a significant position in moulding students' personality and overall development. The absence of a classroom and physical environment and its long-term implications on students' overall social development vis-a-vis national development needs to be analysed, especially when the world is moving more towards nuclear families and single children. More research on current changes and their impact on students' holistic development can help institutions to modify the educational framework and policies as per the need.

CONFLICT OF INTEREST

All authors ensure that there is no conflict of interest in this research.

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