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Mapping the Landscape of Collaborative Learning in Higher Education: A Bibliometric Journey from 2000 to 2023

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ABSTRACT

Collaborative learning is an umbrella term encapsulating various educational approaches involving joint intellectual efforts by students, or students and teachers collaboratively. Typically occurring in groups of two or more, participants engage in mutual exploration for understanding, solutions, or meanings, ultimately creating a product. This bibliometric review explores collaborative learning studies from the Scopus database, employing statistical methods to analyze 1,974 documents spanning 2000 to 2023. The study assesses annual scientific production, average citations per year, top 10 source titles, sources' production over time, most relevant authors, authors' production over time, most globally cited documents, and a word summary of relevant terms. The findings reveal a rising trend in collaborative learning research and identify influential sources and authors. While the study suggests the need for broader keyword inclusion and database expansion for a comprehensive overview, it lays the foundation for understanding collaborative learning research dynamics. The paper stimulates future inquiries in the evolving landscape of collaborative learning. The research's significance lies in providing a guiding framework for stakeholders in the expansive field of collaborative learning.

Keywords: *Collaborative Learning; Higher Education; Bibliometric Study; Learning Management System*

RESEARCH HIGHLIGHTS

The study explores the collaborative learning landscape, unveiling trends in annual scientific production, author dynamics, and globally influential documents. Examining 1,974 documents from 903 diverse journals, the study reflects a dynamic range of contributions. Involving 6,029 authors, the collaborative nature of the academic domain is evident, with 332 single-authored documents striking a balance between collective efforts and individual contributions. The peak in 2023, with 217 publications, signifies sustained growth and heightened recognition of collaborative learning in higher education. Notable sources in collaborative learning research include Sustainability, Computers and Education, Education Sciences, Education and Information Technologies, and Higher Education Research and Development. A keyword analysis reveals a thematic focus on student-centered education, emphasizing terms such as "students," "education," and "learning." At the same time, the recurrence of "human" and "humans" signifies a broader consideration of the human aspect in collaborative learning, complemented by a parallel emphasis on pedagogical practices encapsulated by the term "teaching."

Research Objectives

This study seeks to assess the trajectory and performance of collaborative learning research within the literature. The primary aim is to evaluate trends in this field. The objectives encompass identifying fundamental characteristics of the literature, including the quantity of articles and citations, research subject categories, and representative journals. Additionally, the study aims to conduct a detailed analysis of the distribution of scientific production of collaborative learning studies. By achieving these objectives, the research

aims to provide a comprehensive understanding of the landscape, shedding light on the key features and trends within collaborative learning research.

Methodology

This study employed bibliometric methods (Paltrinieri et al., 2019; Hassan & Ahmi, 2022) to conduct a comprehensive analysis of collaborative learning in higher education institutions. The Scopus database served as the primary source for bibliographic data, with a focus on the time frame from 2000 to 2023. The search fields included article title, abstracts, and keywords to capture relevant publications. Data extraction, performed on November 30th, 2023, resulted in 1,974 records meeting the inclusion criteria. These criteria encompassed a specific focus on collaborative learning in higher education institutions, ensuring a cohesive dataset for subsequent statistical analysis. The information extracted included bibliographic details such as authorship, publication year, article title, abstract, and keywords. The extracted bibliographic data underwent a statistical analysis using RStudio and Biblioshiny to unveil patterns, trends, and relationships within the landscape of collaborative learning in higher education. This analysis included quantitative assessments of annual scientific production, average citations per year, top 10 source titles in collaborative learning research, sources' production over time, most relevant authors, authors' production over time, most global cited document, words summary of relevant words in the dataset. The systematic protocol employed to acquire the dataset for this analysis.

Results

The research results unveil a consistent growth trend in annual scientific production dedicated to collaborative learning, from a modest start in the early 2000s to a peak of 217 publications in 2023. The analysis of average citations per year reflects varying levels of scholarly acknowledgment, with notable peaks in impact during specific periods. Six key source titles, including Sustainability, Computers and Education, and Higher Education Research and Development, have significantly contributed to collaborative learning research, each boasting more than 20 articles. The top ten authors in the field have not only significantly shaped collaborative learning scholarship but also demonstrated both quantity and impact in their contributions, influencing the broader academic community. Globally cited documents, with the top article published in 2004, gained substantial recognition, garnering between 354 and 1,310 citations. Additionally, the analysis of word frequency highlights central themes such as "students," "education," and "learning," emphasizing student-centered education, with notable considerations of the human aspect, pedagogical practices, gender dynamics, and a specific focus on higher education. This comprehensive analysis emphasizes the multifaceted nature and evolving landscape of collaborative learning research.

Findings

The findings reveal a compelling trajectory in the collaborative learning research landscape. The consistent growth in annual scientific production from the early 2000s to the peak of 217 publications in 2023 emphasizes a significant and sustained scholarly interest in the field. This escalation suggests an increasing acknowledgment of the pivotal role collaborative learning plays in higher education. Lyon et al. (2021) contribute to this discourse by asserting that collaborative learning, when compared to individual learning, enhances students' conceptual understanding, creative problem-solving abilities, participation levels, skill development, and socialization. Similarly, Warsah et al. (2021) contend that collaborative learning significantly influences learners' cognitive processes and socio-emotional functions. The analysis of average citations per year further unveils intricate patterns, with notable peaks in impact during specific periods, indicative of varying levels of scholarly recognition. The prominence of six key source titles in contributing over 20 articles each amplifies their pivotal role in shaping the collaborative learning discourse. Additionally, the influence of the top ten authors, marked by both prolific quantity and impact in their contributions, highlights their leadership in steering collaborative learning research. The globally cited documents, ranging from 354 to 1,310 citations, not only indicate widespread recognition but also signify seminal contributions to the field. Finally, the analysis of word frequency provides rich insights, emphasizing the central focus on student-centered education, the broader consideration of the human aspect, gender dynamics, and a specific emphasis on higher education in collaborative learning contexts. These findings collectively illuminate the multifaceted nature and evolving landscape of collaborative learning research. The research illustrates that the impact of collaborative learning goes beyond immediate outcomes, fostering continuous learning, heightening awareness, nurturing positive mindsets, and facilitating uninterrupted educational progress. As evidenced by Han and Ellis (2021), Lyon et al. (2021), and Warsah et al. (2021), this approach contributes to enhanced learning outcomes and improved academic achievements.

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Nurhidayah Bahar *serves as a Senior Lecturer at the National University of Malaysia, making substantial contributions to the realm of information systems. She holds a PhD from University of Malaya. As a dedicated researcher in information systems, she specializes in knowledge management, IT/IS, database systems, and e-commerce, with applications spanning education, business, healthcare, retail, and finance sectors. Utilizing diverse research methodologies, including extensive qualitative approaches and meticulous process observation, Nurhidayah is committed to advancing the understanding of complex information systems dynamics.*

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