EVOLUTION OF BLENDED LEARNING AND ITS PROSPECTS IN MANAGEMENT EDUCATION

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ARTICLE INFO	ABSTRACT
	Purpose: The objective of this study was to identify the profile of academic research on blended learning in the world and propose a research agenda for the topic. **Theoretical framework:** Recent literature has reported good results in both student performance and satisfaction in blended learning (Dziuban et al., 2004). However, there is still much to investigate and learn about BL because it is a recent development. **Design/methodology/approach:** We analysed the profile of international publications on blended learning in management and business from 2001 to 2021. We identified when, who, where and what was published on the subject, singling out the authors and journals with the greatest impact based on the h-index and CiteScore (Scopus), as well as exploring the cooperation between countries. **Findings:** The volume of research has been increasing over the past twenty years, although there are only a few authors, institutions and reference journals contributing to the topic's consolidation and the countries conducting the most joint research in co-authoring networks account for the largest volume of publications, authors and impact journals. **Research, Practical & Social implications:** We suggest a future research agenda and highlight the contributions made to executive and management education. **Originality/value:** The results indicate that the number of publications is growing, and the management and business area is the one that contributes the most, with the countries that produce in co-authorship also providing the most publications. Doi: https://doi.org/10.26668/businessreview/2022.v7i1.291

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EVOLUÇÃO DO BLENDED LEARNING E SUAS PERSPECTIVAS NA EDUCAÇÃO GERENCIAL

RESUMO

Objetivo: O objetivo deste estudo foi identificar o perfil da pesquisa acadêmica sobre blended learning no mundo e propor uma agenda de pesquisa para o tema.

Referencial teórico: A literatura recente tem relatado bons resultados tanto no desempenho dos alunos quanto na satisfação dos estudantes no blended learning (Dziuban et al., 2004). No entanto, ainda há muito o que investigar e aprender sobre o BL por ser um desenvolvimento recente.

Desenho/metodologia/abordagem: Analisamos o perfil das publicações internacionais sobre blended learning em gestão e negócios de 2001 a 2021. Identificamos quando, quem, onde e o quê foi publicado sobre o assunto, destacando os autores e periódicos de maior impacto com base no índice h e CiteScore (Scopus), além de explorar a cooperação entre países.

Resultados: O volume de pesquisas vem aumentando nos últimos vinte anos, embora existam poucos autores, instituições e periódicos de referência contribuindo para a consolidação do tema e os países que realizam mais pesquisas conjuntas em redes de coautoria respondem pelo maior volume de publicações, autores e revistas de impacto.

Pesquisa, implicações práticas e sociais: Sugerimos uma agenda de pesquisa futura e destacamos as contribuições feitas para a educação executiva e gerencial.

Originalidade/valor: Os resultados indicam que o número de publicações está crescendo, sendo a área de gestão e negócios a que mais contribui, sendo que os países que produzem em coautoria também fornecem mais publicações.

Palavras-chave: Blended learning. Educação gerencial. Educação executiva. Análise bibliométrica. Gestão e Educação Empresarial.

EVOLUCIÓN DEL BLENDED LEARNING Y SUS PERSPECTIVAS EN LA EDUCACIÓN GERENCIAL

RESUMEN

Objetivo: El objetivo de este estudio fue identificar el perfil de la investigación académica sobre blended learning en el mundo y proponer una agenda de investigación sobre el tema.

Método: Analizamos el perfil de las publicaciones internacionales sobre blended learning en gestión y negocios desde 2001 hasta 2021. Identificamos cuándo, quién, dónde y qué se publicó sobre el tema, destacando los autores y las revistas de mayor impacto. basado en el índice h y CiteScore (Scopus), además de explorar la cooperación entre países.

Originalidad / Relevancia: La literatura reciente ha reportado buenos resultados tanto en el rendimiento como en la satisfacción de los estudiantes en el aprendizaje mixto (Dziuban et al., 2004). Sin embargo, todavía queda mucho por investigar y aprender sobre BL, ya que es un desarrollo reciente.

Resultados: El volumen de investigación ha ido en aumento en los últimos veinte años, aunque son pocos los autores, instituciones y revistas importantes que contribuyen a la consolidación del tema y los países que más investigaciones conjuntas en redes de coautoría concentran el mayor volumen de publicaciones, autores y revistas de impacto.

Contribuciones teóricas / metodológicas: Los resultados indican que el número de publicaciones está creciendo, y el área de gestión y negocios es la que más aporta, siendo los países que producen en coautoría también los que más publicaciones aportan.

Contribuciones sociales / gerenciales (opcional): Sugerimos una futura agenda de investigación y destacamos las contribuciones realizadas a la educación ejecutiva y de gestión.

Palabras clave: Blended learning. Educación gerencial. Educación ejecutiva. Análisis bibliométrico. Gestión y Educación Empresarial.

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INTRODUCTION

Online education is a global phenomenon driven by new technologies and the widespread adoption of the internet (Kumar et al., 2019). In executive and management education, which is the focus of this study, online learning (OL) has become commonplace (Beenen & Arbaugh, 2019). Through the extensive use of internet technologies and network learning (Caner, 2012), online and face-to-face education have converged into blended learning (BL), which combines the capabilities of online education with classroom teaching (Bentley et al., 2012). As online and hybrid education becomes more common, the amount of online and hybrid training increases, which contributes to the development of the workforce (Ghosh & Githens, 2011). Recent literature has reported good results in both student performance and satisfaction in hybrid experiments (Dziuban et al., 2004). However, despite the modernisation of education with new technologies and the successful results of BL, in practical and research terms online education is still a challenge (Han et al., 2011). There is still much to investigate and learn about BL because it is a recent development. Thus, an understanding of this field of research is crucial to help professionals and researchers in management education effectively understand and share efforts to improve their research and practice on the subject.

Current research on online and hybrid education in high-impact journals reflects a relatively concentrated focus of attention from management and business (Arbaugh et al., 2017). The literature review conducted by Arbaugh et al. (2010) in management disciplines and related topics for the period 1994-2009 in the leading journals on management education concludes that despite the evolution there is still a large scope for further research. Arbaugh and Garrison (2007) have noted the need for further research on the subject. Since then, the literature has developed from different perspectives (Bentley et al., 2012; Daspit & D'Souza, 2012; Fadol et al., 2018; Hwang, 2018; Karakas et al., 2015; Scafuto et al., 2017), although it is still a field that needs further investigation.

Arbaugh (2016) has recently analysed publications on BL, observing that despite the increase in the volume of publications worldwide, the number of authors dedicated to the subject is shrinking. According to this author, the vitality of a research field depends on a growing number of dedicated researchers; however, management education has found it difficult to attract scholars, especially in recent and promising topics such as BL.

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The trend in the number of studies and publications on a topic indicate whether it is on the rise. Bibliometric research may extend our knowledge on a field and inform the construction of a more solid theoretical framework. A bibliometric analysis allows identifying the most frequent topics, the authors publishing most often in a certain journal, and the most cited articles, for example (Roig-Tierno, González-Cruz, & Llopis-Martínez, 2017). The volume of publications is important, but their quality is a cause for concern. The number of citations from publications can be considered indicators of their impact (Hwang et al., 2019). We can use various indicators for this, including the h-index (Hirsch, 2005), which measures the impact of an author or journal, and we shall be analysing this here. Other indicators, such as the SCImago Journal & Country Rank (SJR) and CiteScore on Scopus, can be used to measure the impact of journals and articles.

Research in management education has made progress over the past decade, but there are concerns about its future due to the difficulty of attracting new researchers and the apparent inability of most influential works to identify the size of potential contributions (Arbaugh & Hwang, 2015; Arbaugh et al., 2016). This study therefore asks a key research question: what does the map of international publications on BL in education and business look like? Despite the literature reviews, there is no answer to this question, as it was not possible to conduct a bibliometric study on this topic, particularly in the area of management and business. Secondary questions (i.e., when, who, where, what?) complement this study, which aims to map the profile of international publications on BL in management and business in the Elsevier's Scopus from 2001 to 2021. The results of a bibliometric analysis may vary depending on the database used (Mongeon & Paul-Hus, 2016). In a previous analysis, we found that there is a very small difference between the number of articles in the Scopus and Web of Science databases for the search used. Therefore, we only kept the articles found in Scopus. These two databases appear to be the most extensive ones (Guz & Rushchitsky, 2009).

To date, other studies (Arbaugh, 2010; 2016; Cheng, Wang, Mørch, Chen, & Spector (2014) have analysed BL's potential, reviewed the literature, and identified trends on the subject. However, there is no bibliometric study on the topic's evolution or a research agenda for the future in the area of management and business. This study advances the state-of-the-art by analysing four key questions (when, who, where and what?) to map the field of research and propose the corresponding agenda. One of its primary contributions is to note that the volume of research has been increasing over the past twenty years, although there are only a few authors, institutions and

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reference journals contributing to the topic's consolidation. A secondary contribution is that the countries conducting the most joint research in co-authoring networks account for the largest volume of publications, authors and impact journals.

The remainder of the article proceeds as follows. After this brief review of the context of BL, we articulate the article's rationale and its search strategy, which we will present in the sections on data collection and analysis. We then report the results of the bibliometric research by answering the secondary questions (when, who, where, what?). We conclude with a brief discussion of the results, the challenges that lie ahead, and the proposal of a research agenda for the future.

METHOD

The research procedure consists of a bibliometric analysis for quantifying scientific production (Vanti, 2002) and mapping advances and perspectives on the subject. Bibliometric analysis is useful for indicating directions and strategies for a future research agenda (Hassan et al., 2014), using quantitative methods to describe the scientific output over a given period. Bibliometric research supports the literature review on a subject, as it permits identifying the characteristics of the field being investigated, together with a better understanding of the topic based on reference studies, while such research can also guide choices and practice in a given area. In the academic field, it is advisable to use bibliometric research before exploring any topic in a literature review, as it may be useful for mapping the existing knowledge structure (Vanti, 2002).

Data Collection

We conducted the bibliometric analysis to answer the four key questions. In parallel, we analysed the relationship between countries and authors, ending with the most recurrent topics in past and recent literature. We conducted the research with the Scopus database by the Elsevier publishing company. The Scopus database covers scientific publications in various areas of knowledge since 1960. The first article we found dates from 2001, but the search considered all the years available in both databases. We chose the Scopus because of their importance to science and their global impact.

We searched for the keywords "blended learning" in the Scopus database (https://www.scopus.com/) in "Advanced search" by considering the term in quotation marks (")

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so that the search would only provide results from studies with both words. We refined the search to the type of document "article" and to the topic "Business, Management and Accounting", which is the researchers' area of interest. We retrieved the data on 28 October 2021, locating 1588 articles.

Figure 1. Research design
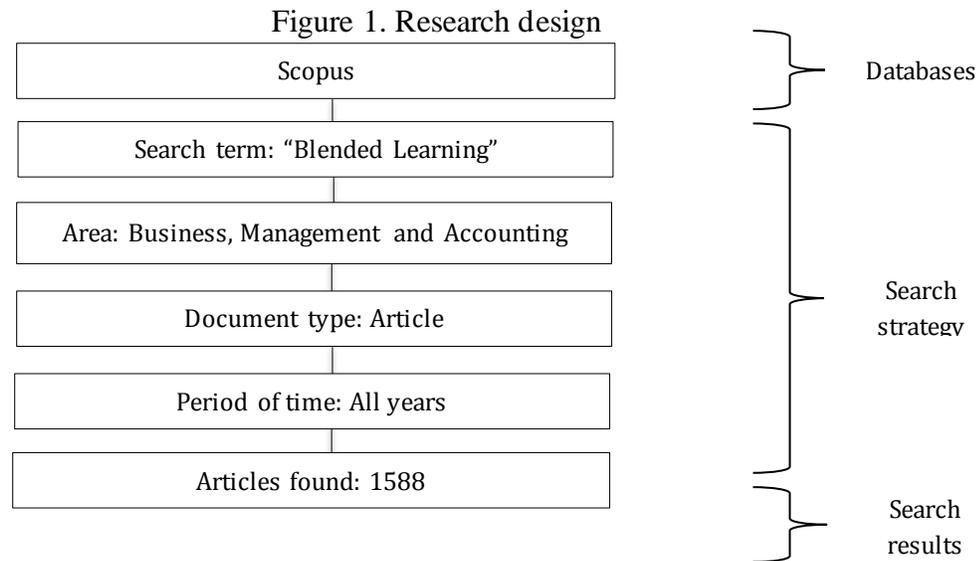
Source: Produced by the authors based on research data (2021).

Data Analysis

We retrieved the data from the Scopus database in CSV format. We used Vantage Point software to process the data, UCINET software to create the collaboration networks, and NetDraw to view the networks. We conducted the basic analyses to answer the secondary research questions (when, who, where, what?) and produce graphical representations and tables. Following the basic analysis, we developed the cooperation network between countries and identified the most recurrent terms in the articles.

We analysed the contributions that the executive and management area made to the topic; we identified the number of publications per year, the ten most prolific authors and their h-index; the ten most productive universities, the ten journals with the highest number of publications and citations on the subject, the highest impact journals based on CiteScore, and the countries that published the most on BL. We have elaborated on the collaboration network between countries and co-authors, and we have identified the most recurring keywords in article titles. We now present the results of this analysis.

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**EVOLUTION OF INTERNATIONAL PUBLICATIONS ON BLENDED LEARNING**

The first step in analysing this study's results is to position the BL publications in management and business. Of the 1588 articles found, 45.2% are in business, management, and accounting, followed by social science (25.8%), decision science (6.6%), computer science (5.7%), engineering (5.6%), economics (4.0%), psychology (1.9%), arts and humanities (1.4%), and others (2.4%). This supports the results reported by Arbaugh et al. (2017), as reviewed in this study, highlighting the management and business area as clearly the most productive in BL.

There are several reasons that explain why the management and business area is the one publishing the most on BL. First, the publications may reflect the interest in adopting BL shown by universities, business schools, and organisations that have associated it with resource-saving and time flexibility. Second, technological advancement tends to be deployed faster in the business environment because of competition and the pursuit of efficiency. This may be another reason that BL appeals to the area, as well as the ease of use of the technology that organisations develop, so business schools and universities should look for ways of serving the market. The following analyses this study's results.

What is the date of publication of articles on blended learning in management and business?

The curve in Figure 2 shows an increase in the number of publications, with the first being recorded in 2001, and the volume increasing eightfold in twelve years (from 2009 to 2021). The first article found is "Blended Learning Working in a Leadership Development Program", whose authors are Elaine Voci and Kevin Young, from the US and the UK, respectively. This article was published in Industrial and Commercial Training, and analysed the benefits of including e-learning in training, concluding that it increased the sense of teamwork and learning efficiency (Voci & Young, 2001). Although the study is from 2001, it reflects many of BL's current challenges in organisations.

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Figure 2. Publications on BL, per year
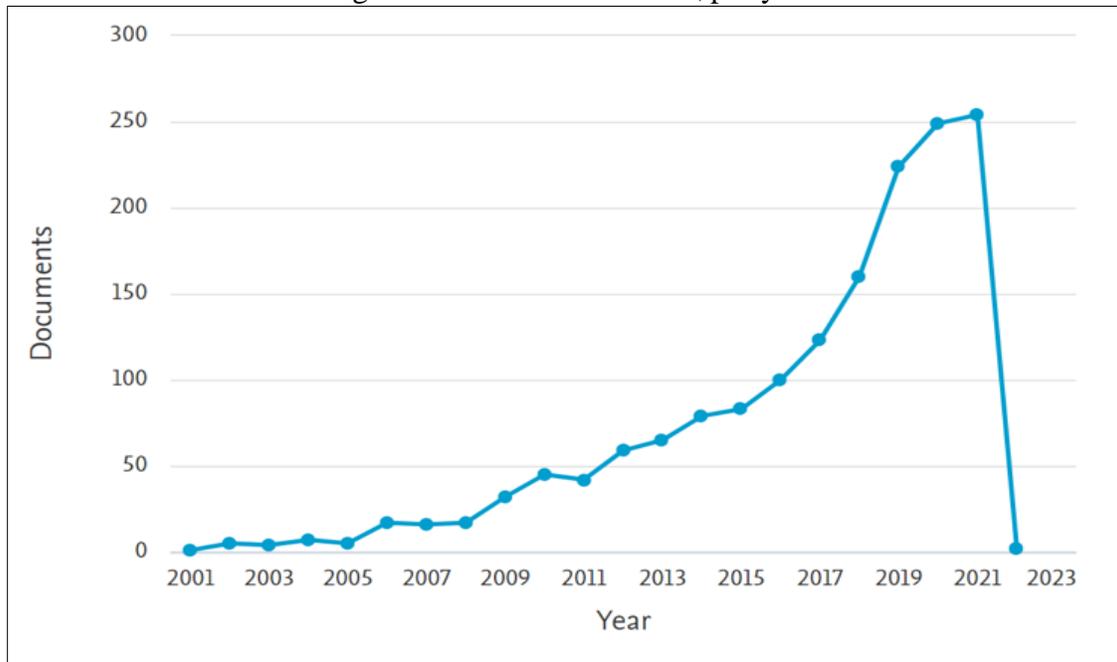
Source: Scopus (2021).

The increase in the number of publications is significant and may be a sign of growing interest in the topic. This evolution may also be associated with the advancement of information and communication technologies (ICTs), which have become vastly more accessible since 2000 (Prensky, 2001), enabling online education, as reported in the studies by Kumar et al. (2017), Caner (2012), and Lwoga and Komba (2015). BL is a promising topic, and it has a practical interest that may be reflected in its research and development as a field of study, as posited by Beenen and Arbaugh (2019), whereby online education has become commonplace in management education.

Who has published on blended learning in management and business?

Of the total number of publications, 4.4% are by the ten authors that publish the most on the topic, with ten publications or less, and 95.6% are by the group of authors with five publications or less (Table 1). These figures indicate that the area has few authors publishing extensively on the subject, and reveal the need for consolidating the topic as a field of study.

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Table 1. Publications by author

Order	Number of articles	Author	H-Index Scopus	Institution	Country
1	15	Arbaugh, J. Ben	29	University of Wisconsin	United States
2	8	Hwang, A.	11	Pace University	United States
3	8	Cheng, Y.	14	Chaoyang University of Technology	Taiwan
4	7	Asarta, C. J.	8	University of Delaware	United States
5	6	Fornaciari, C. J.	12	La Salle University	United States
6	6	Lakhal, S.	8	Université de Sherbrooke	Canada
7	5	Chipulu, M.	13	University of Southampton	United Kingdom
8	5	Li, K. C.	8	The Open University of Hong Kong	China
9	5	Ojiako, U.	13	University of Sharjah	United Arab Emirates
10	5	Poon, J.	9	University of Derby	United Kingdom

Source: Produced by the authors based on research data (Scopus, 2021).

Arbaugh is the author with the most publications (15), followed by Hwang (8), both from the University of Wisconsin-Oshkosh (UWO) in the US. 7 of Arbaugh's 15 articles involve business, management, and accounting, while the remaining articles are in social sciences, computer sciences, decision sciences, arts and humanities, economics, econometrics and finance, and psychology. The Academy of Management Learning and Education is the journal in which Arbaugh has published the most articles in general (14), and not simply about BL, followed by the Journal of Management Education (10), both in management and business. This indicates that Arbaugh is a researcher dedicated mainly to the study of BL associated with management and business.

Arbaugh has received a significant volume of citations from 2009 to 2021. His most cited article is "Researching the community of inquiry framework: Review, issues, and future directions". In co-authorship with Garrison, he has also analysed other research on social, pedagogical, and cognitive issues, and called for further quantitative and interdisciplinary research, along with the expediency of identifying the relationship between online course structures and outcomes (Arbaugh & Garrison, 2007). His volume of citations is larger than his number of

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publications, reflecting the impact of his research. A researcher's productivity and impact can be measured in the Scopus database by the h-index. With 4331 citations from 2887 documents and a network of 44 co-authors, Arbaugh has a 29 h-index. This means he has 29 publications with 29 or more citations.

As regards the institutions of the authors publishing on BL, there are three prominent universities (Table 2): Hong Kong Polytechnic University (19), Universiti Sains Malaysia (15), and University of Wisconsin-Oshkosh (15), in China, Malaysia, and the US, respectively. The ten most prolific institutions on BL, ranging from 10 to 19 publications, account for 8% of the overall total. Most publications (91.75%) come from different institutions. The results indicate that BL publications are spread across several institutions.

Table 2. Affiliate Publications

Order	Articles	Institution	Country
1	19	Hong Kong Polytechnic University	Hong Kong
2	15	Universiti Sains Malaysia	Malaysia
3	15	University of Wisconsin Oshkosh	United States
4	14	University of Queensland	United States
5	13	University of Technology Sydney	Australia
6	12	Universiti Teknologi Malaysia	Malaysia
7	12	Griffith University	Australia
8	11	Deakin University	Australia
9	10	Universiti Teknologi MARA	Malaysia
10	10	Hong Kong Metropolitan University	Hong Kong

Source: Produced by the authors based on research data (Scopus, 2021).

What is the origin of mixed learning research in business and management?

We begin by identifying the journals and countries that publish the most on BL, and then present an analysis of the intensity of interactions between countries and authors. Table 3 presents the ten journals with the most articles on BL, and each journal's scientific impact according to the SJR indicator. The SJR is an indicator of the Scopus database and rates a particular journal's prestige (Colledge, Moya-Anegón, Guerrero-Bote, Lópes-Illescas, Aisati, & Moed, 2010). Among the most published journals on the topic, the International Journal of Management Education has the highest SJR (1.167 – Q1) in the area of Business, Management and Accounting. However, the International Journal of Innovation and Learning is the one with the largest volume of publications (66 articles).

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Table 3 presents the ten journals with the most articles on BL in management and business, followed by each journal's impact according to the CiteScore 2020 and Scientific Journal Ranking (SJR).

<div align="center">Table 3. Volume of journal publications</div>

Order	Articles	Journal	CiteScore 2020	SJR 2020
1	66	International Journal of Innovation and Learning	1.0	0.22
2	48	Knowledge Management and E-Learning	3.3	0.53
3	44	Espacios	0.5	0.00
4	44	International Journal of Management Education	5.1	1.16
5	41	Education and Training	3.8	0.743
6	39	International Journal of Scientific and Technology Research	0.2	0.123
7	32	International Journal of Education Management	2.1	0.427
8	32	International Journal of Recent Technology and Engineering	0.0	0.107
9	32	Journal of Education for Business	1.6	0.508
10	27	TEM Journal	1.2	0.199

<div align="center">Source: Produced by the authors based on research data (Scopus, 2021).</div>

The ten journals with the most publications are also the ones with the largest volume of citations. Nevertheless, the journal with the most publications on BL is not the one with the greatest impact, according to the Cite Score ™ indicator. CiteScore is an indicator of impact from sources such as journals (Elsevier, 2021). This indicator refers to the number of citations received from a source in a given year for documents published over the previous three years, divided by the number of Scopus-indexed documents published in those same three years. In this study, we verified the CiteScore 2020 calculated by Scopus on 5 May 2021 for the ten journals with the most publications on BL (Figure 3). The results indicate that International Journal of Management Education has the highest CiteScore (5.1).

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Figure 3. CiteScore Publication by year
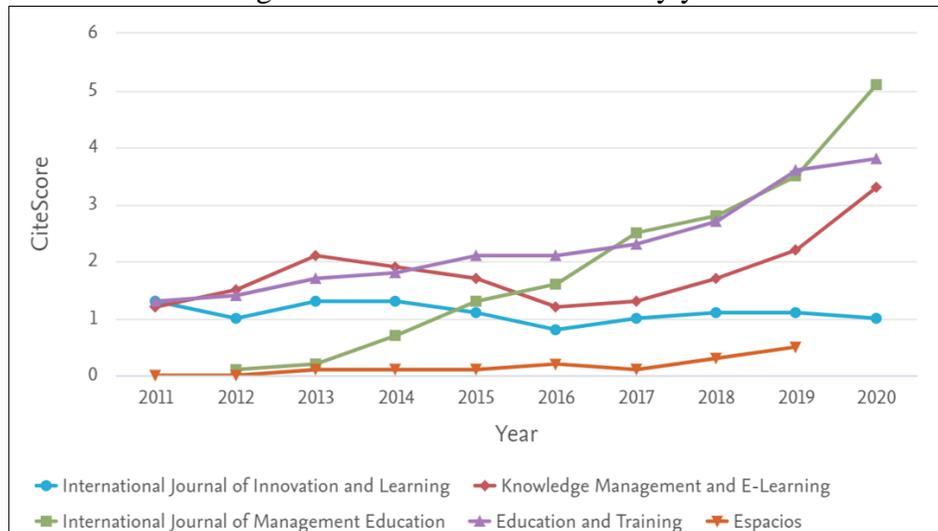
Source: Scopus (2021).

The countries with the most publications on the topic are the US (319), the UK (160), and Australia (143); together, the three countries account for 39.10% of international publications on the subject (Figure 4). The US contribution differs from other countries and is associated with the authors and institutions that publish the most about BL. Malaysia, India, Spain, Indonesia, China, Germany, and Hong Kong with between 49 and 96 publications, complete the group of countries with the most publications, with around 29.72%. Table 4 presents the H-Index which is the Scopus database's rating of countries. The US has the highest overall ranking, not just considering Business and Management. The countries with the most BL publications (US, UK, and Australia) are also the ones with the highest overall ranking. This indicates that these countries' contribution is relevant and representative.

Table 4. Publications by country

Order	Articles	Country	H-Index
1	319	United States	779
2	160	United Kingdom	402
3	143	Australia	290
4	96	Malaysia	124
5	84	India	160
6	70	Spain	223
7	69	Indonesia	67
8	56	China	211
9	49	Germany	264
10	49	Hong Kong	267

Source: Produced by the authors based on research data (Scopus, 2021).

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We analysed the interactions between countries and co-authoring (Figure 4). This analysis is important for identifying countries that are contributing to the internationalisation of research through co-authoring networks. The results show that the countries with the most publications and citations on the subject are those involved in co-authoring collaboration networks, while those with the lowest volume of publications and citations are also those with a low interaction in this network.

On the one hand, some countries have an intense collaboration network, such as the US, the UK, and Australia. On the other, there are those with more modest networks, such as Malaysia and China. The analysis of the collaboration between authors and countries indicates that the scientific production in co-authorship is important and may be linked to the volume of publications on the subject.

Figure 4. Interactions between authors and countries
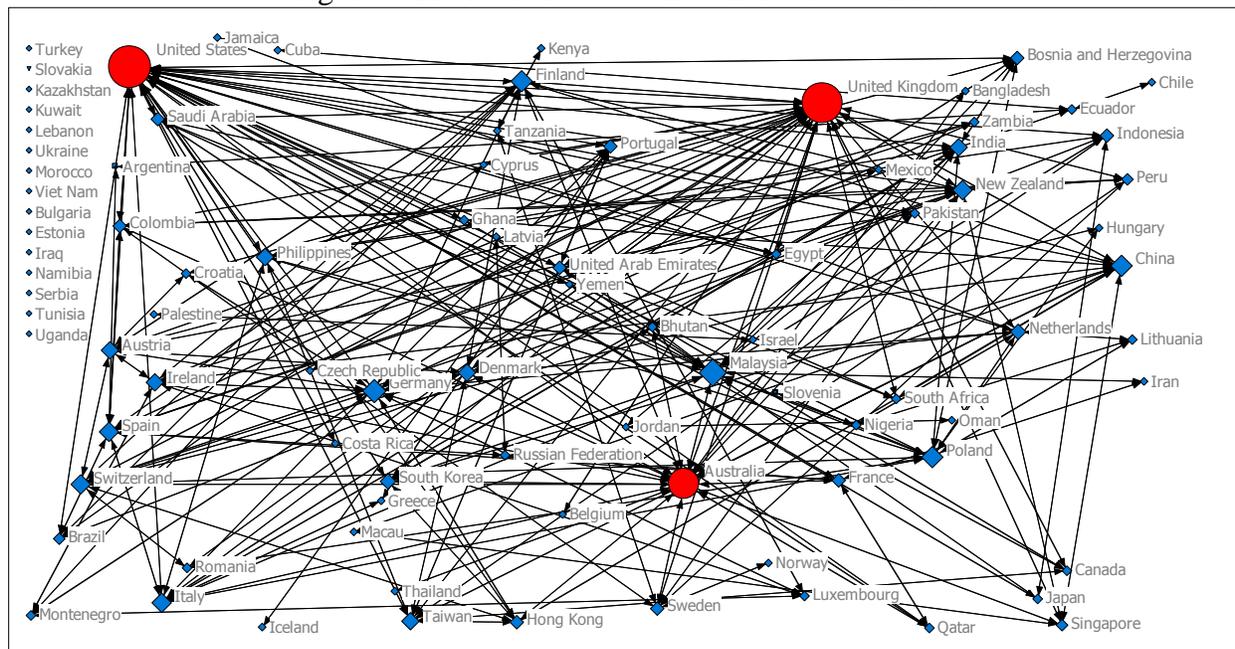
Source: Produced by the authors based on research data 2001-2019, in UCINET v.6 software.

What are the most frequent topics in blended learning publications?

We analysed the content of articles from 2021 with the highest number of citations and selected the ten articles with the highest number of citations in Scopus. Table 5 presents the citations of the articles in the Scopus database.

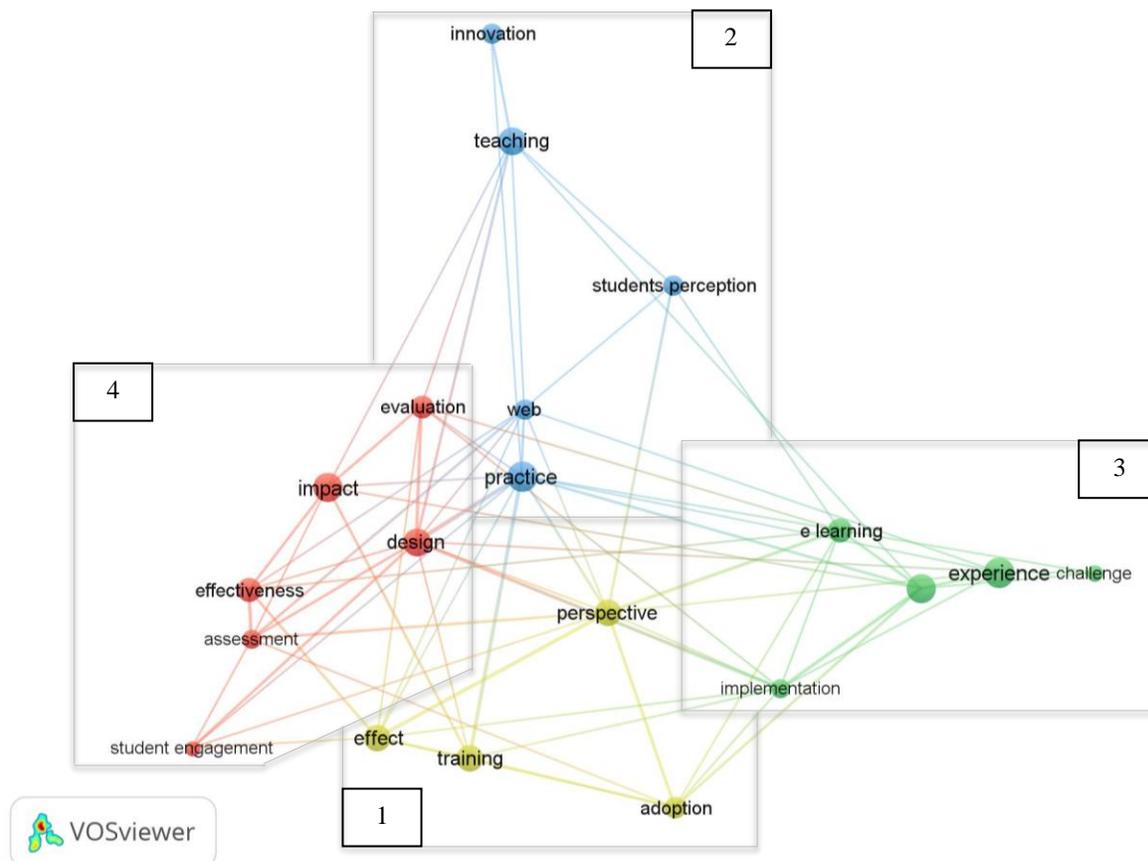Intern. Journal of Profess. Bus. Review. | São Paulo, v.7 | n.1 | p. 01-24 | e0291 | 2022.

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Table 5. Most cited articles

Order	Most cited article (2001-2021)	Citations in Scopus
1	The comparative effectiveness of web-based and classroom instruction: A meta-analysis	442
2	Motivation to learn and course outcomes: The impact of delivery mode, learning goal orientation, and perceived barriers and enablers	233
3	Consumer experiences, attitude and behavioral intention toward online food delivery (OFD) services	205
4	Assessing the moderating effect of gender differences and individualism-collectivism at individual-level on the adoption of mobile commerce technology: TAM3 perspective	175
5	A study of best practices in training transfer and proposed model of transfer	154
6	Social media models, technologies, and applications: An academic review and case study	132
7	Going global: Developing management students' cultural intelligence and global identity in culturally diverse virtual teams	127
8	Advanced ontology management system for personalised e-Learning	116
9	Experiential value in branding food tourism	111
10	'It's an illusion, but it looks real!' Consumer affective, cognitive, and behavioural responses to augmented reality applications	98

Source: Produced by the authors based on research data (Scopus, 2021).

We quantified and analysed the titles of the scientific articles to identify the most recurring and relevant topics in two periods (2001-2019 and 2020-2021). The topics presented reflect the prevailing themes in the articles published from 2001 to 2019 (Figure 5), before the Covid-19 pandemic, and articles published from 2020 to 2021 (Figure 6), after the Covid-19 pandemic.

In the first analysis, we adopted the Title Field strategy, which resulted in 2881 terms, of which 41 reached the threshold. In the second analysis performed by VOSviewer software, which selects 60% of the most relevant terms, we opted for 25 terms to elaborate on the network of subjects studied. The occurrence and relevance analysis generated by the program produced the network (Figure 5). The size of the circle represents occurrences, whereby the most frequent keywords have the largest circle, such as practice, teaching, impact, design, and experience, and the distance between the circles indicates the relationship between terms; for example, "training" is more closely associated with "effect" than "adoption".

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Figure 5. Frequent topics in BL articles 2001-2019 (Before the Covid-19 pandemic)

Source: Produced by the authors based on research data, in VOSviewer software.

The analysis of past publications has resulted in four groups of research topics: (cluster 1) studies on the adoption of BL in the business environment for training purposes, accompanied by the evaluation of its effects and future outlook; (cluster 2) studies on BL in the innovative educational environment, accompanied by the analysis of participants' opinions; (cluster 3) analysis of BL experiences that discuss implementation challenges; and (cluster 4) evaluation, impact and effectiveness of the technology resources used to enable education in the hybrid model, and the design of this model.

In the second analysis, we considered the 2020-2021 keywords to highlight the themes most associated with articles on blended learning in the context of the pandemic. We found 68 words and 6 clusters. The first cluster highlights two teaching methods, active and experiential learning and the intertwined classroom, which contribute, respectively, to increased social presence and student engagement. The second cluster highlights the acceptance, motivation, evaluation and engagement of the e-learning model. The third cluster addresses digital transformation, teaching,

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learning and training, Covid-19 research, and higher education. The fourth cluster highlights the adoption of e-learning, the attitude of the participants and the use of LMS platforms. The fifth cluster highlights academic performance, strategic approach and the use of machine learning. The last cluster highlights managerial education and higher education.

Figure 6. Frequent topics in BL articles 2020-2021 (After the Covid-19 pandemic)
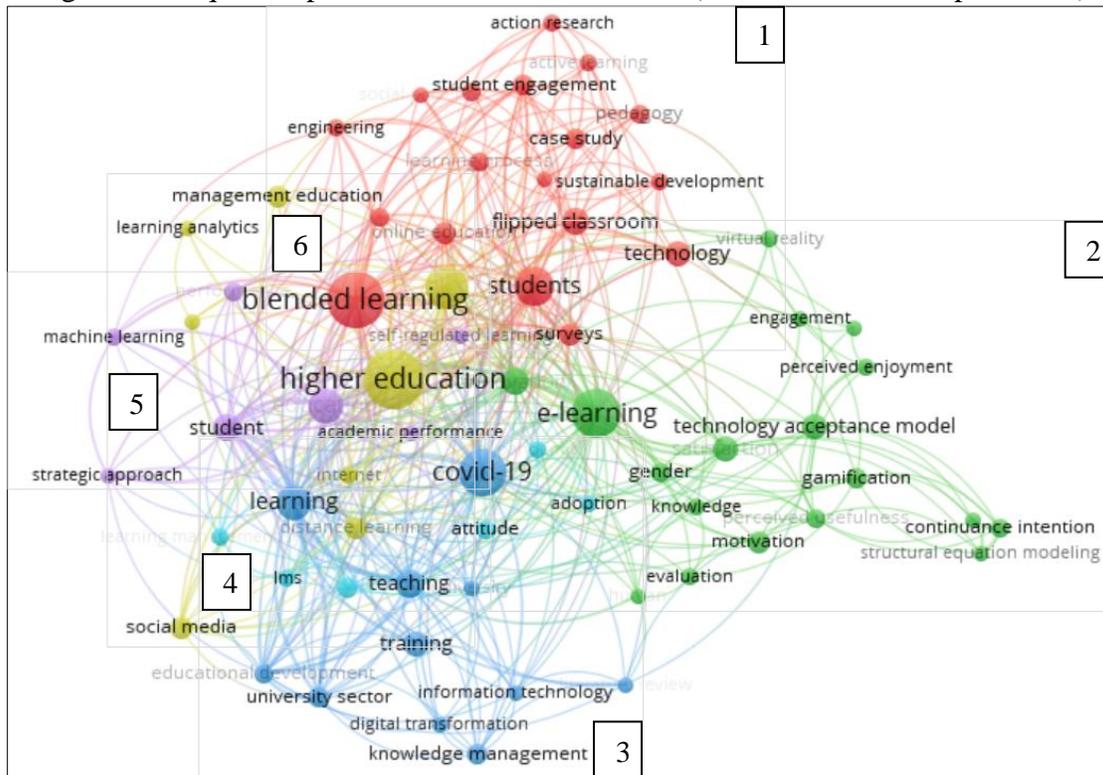
Source: Produced by the authors based on research data, in VOSviewer software (2021).

RESEARCH AGENDA AND CHALLENGES IN THE RESEARCH COLLABORATION NETWORK

This study proposes a research agenda for the future, noting that interest in BL is increasing, especially in the field of management and business. We created the agenda by analysing the titles and abstracts of the most recent publications, considering 2019 to 2021 for identifying emerging topics. We used VOSviewer software to create an interactive map of the terms (Figure 7). This has informed a research agenda composed of three study areas.

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Figure 7. Emerging themes in BL articles
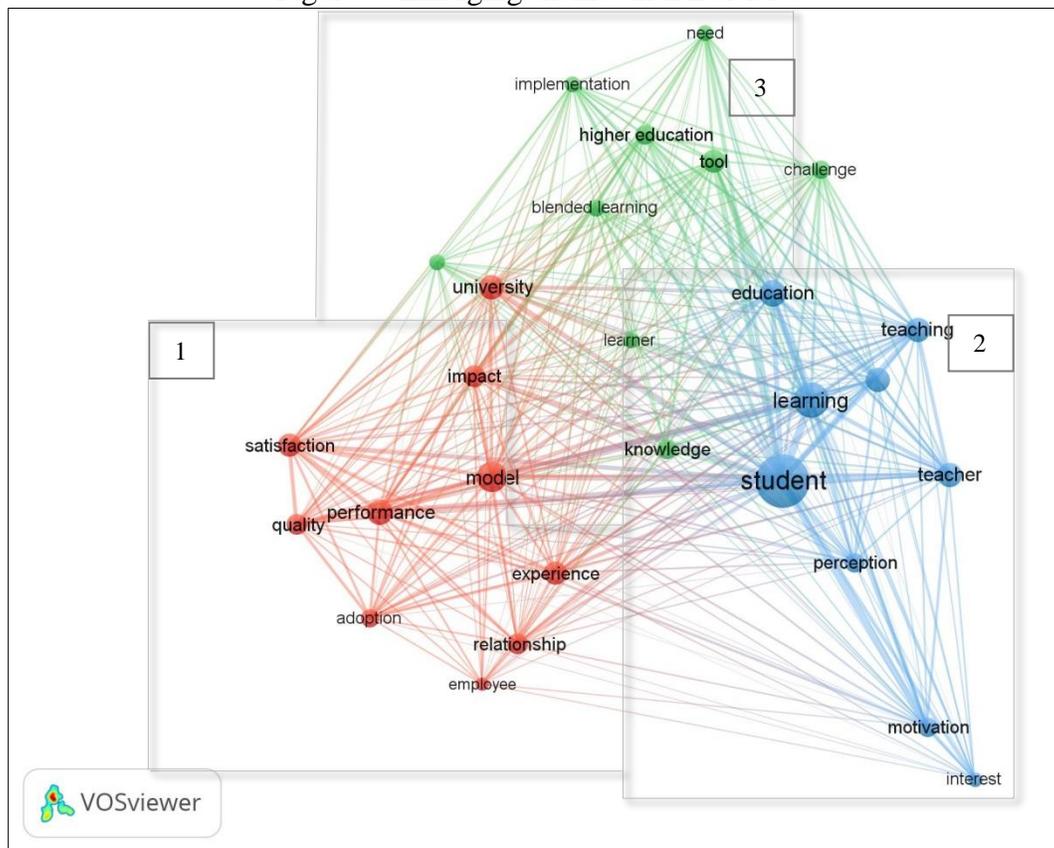
Source: Produced by the authors based on research data, in VOSviewer software.

The first cluster indicates that the study involves participants' performance and satisfaction, the quality and adoption of educational models using BL, and impact analysis, experience, and relationship. The analysis of cluster 1 suggests that both the educational context (term "university") and the organisational context (term "employee") are being studied. The second cluster suggests that participants' perception, motivation, and interest are being investigated in more recent studies on BL. The third cluster, which contains the term "blended learning" associated with the other clusters, suggests that the most recent studies analysed are investigating the implementation of BL, its challenges, needs, and tools within the context of higher education.

In this word analysis of the articles published in 2019, we noted that cluster 3 is very similar to the previous analysis that considered all the articles from 2001 to 2021. We have seen that the challenge and implementation themes continue to be emerging topics in the most specific articles. Cluster 2 shows that the students' perception of the learning process was also an emerging topic of greater relevance to the student, as can be observed in the student cycle. The topic of student

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motivation and interest also stood out in the analysis of the most recent articles. Cluster 3 includes the impact theme from the previous analysis of articles from 2001 to 2021; however, it highlights different themes, such as quality, performance, relationship, satisfaction, and the context of higher education. The themes of BL adoption and the business context (employee) remain close and have joined this cluster. The agenda for the future should consider the adoption and practice of BL and continue to assess the students' opinion, but it should also consider their performance, quality and relationship. The teaching process should gain relevance, as should the learning process and the challenges of implementation.

The major challenge for the growth of a research field is the number of researchers that have devoted themselves to it, as argued by Arbaugh (2016). This dedication also depends on the researchers' efforts to internationalise, from the research and production process itself to the publication of their results. This research originates with representatives from different institutions and countries, meaning different visions and cultures, with more potential to contribute and dialogue with different audiences interested in the subject. Our results indicate that the countries producing the most in co-authorship also produce the most on the subject in question. Others factors indeed contribute to the volume of a country's scientific production on a given topic, but this study shows there is a potential link between high output and the impact of research and more intense co-authoring networks. The effort to internationalise research is necessary to extend not only the exchange of knowledge, culture, and views among researchers, but also to increase the quality of researchers' contribution to society in different contexts.

The period 2009 was a milestone in international publications on the subject, signalling the start of growth. Since then, numerous authors, institutions, and countries have published on the subject; although the main contribution to high impact research has come from a small group of scholars. It is understandable that the development of this field of study will lead to more publications in high-impact journals in response to academic and market interest, but it is important to stress the need to develop the topic in the area of management and executive education, as this is the major contributor today. Our results are plotted on a chart of the evolution and perspectives of international publications on BL (Figure 8).

Figure 8. Chart of international publications on blended learning
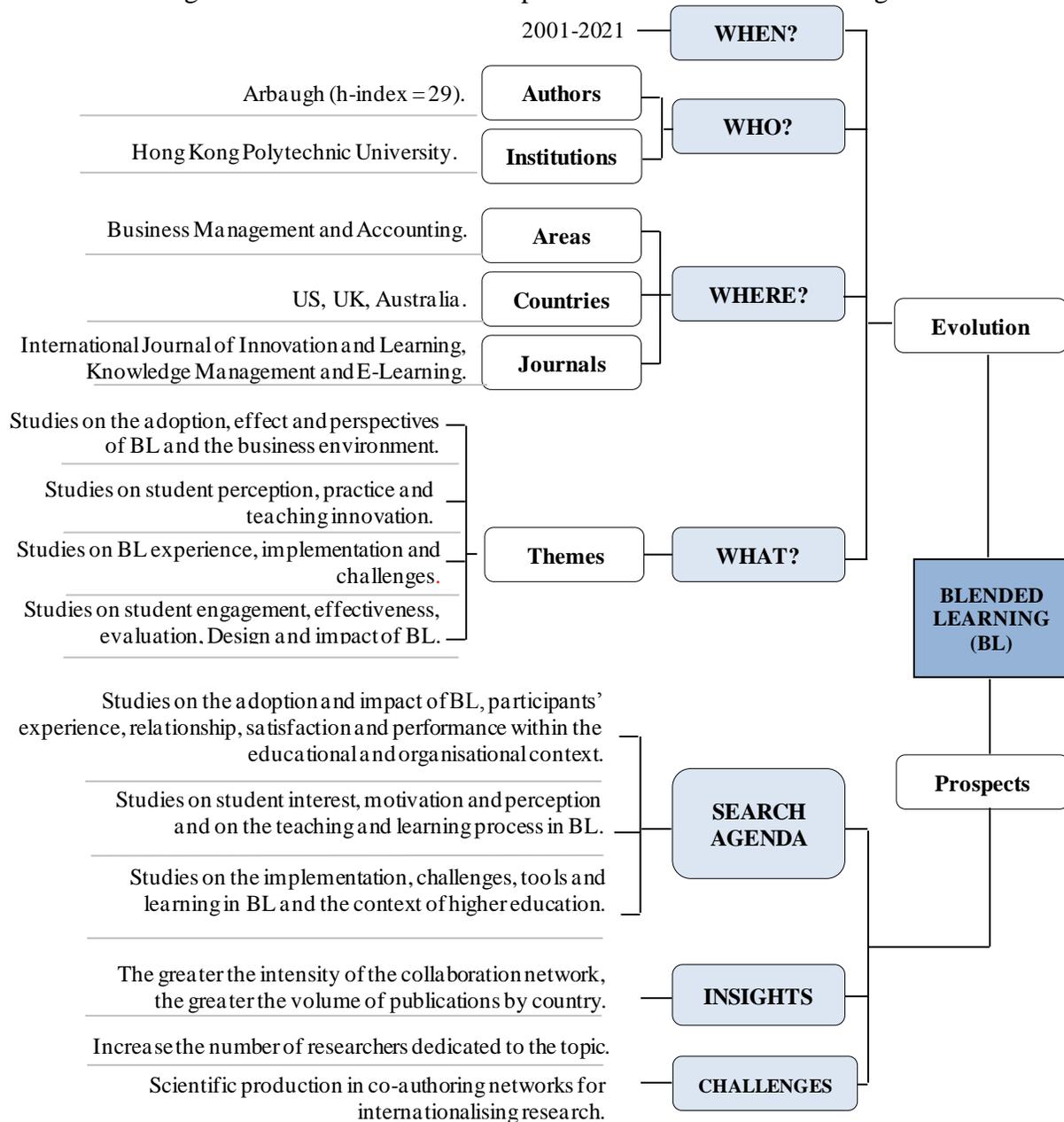
Source: Produced by the authors based on research data (Scopus, 2021).

RESEARCH CONTRIBUTIONS TO EXECUTIVE AND MANAGEMENT EDUCATION

Based on the Scopus database, this study has analysed the profile of international publications on BL in management and business. We identify the evolution of publications and present an outlook on the topic's future. The answers to the key questions (when, who, where, what?) associated with an impact, network, and occurrence analysis complement the study and map

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the publications. Nonetheless, readers should not generalise the results of this research, but instead consider the database's limitations, date of collection, and search strategy. Other studies may complement this research through the use of other databases and impact indicators, such as Google Scholar and Web of Science.

This study caters for researchers and others interested in BL, especially those that need to know the subject in depth or conduct literature reviews. Interested parties can learn from a map of international research that covers time evolution, leading authors and institutions, high-impact journals on the topic, countries and networks of collaboration, and the most researched topics, as well as access a research agenda for the future of a recent field with major contributions and interest from management and executive education. This study also caters for universities and business schools with an interest in applying BL because they can use the research map to identify best practices, benefits, and practical challenges, as well as identify the topic's trends and future prospects. A secondary contribution this study makes is that researchers from other fields can use its research method to explore other areas.

From the perspective of the subject's evolution, we conclude that publications on BL are increasing in number, and this reflects the subject's importance and the need to investigate it. On the one hand, BL provides more inclusion and access for individuals that cannot afford to study; on the other, it enhances the results of those that already have access to other resources, besides other specific benefits pointed out by several authors and reviewed in this study. We conclude that despite the topic's evolution there is room for more research on different fronts and beyond the educational field. The evolution of technology and the internet should extend the field of study, increasing interest in research and BL practice at universities, business schools, and in the corporate environment.

We saw that the topic was already promising before the Covid-19 pandemic and that it became even more relevant with the need for isolation during the pandemic. This can be reinforced with the volume of publications in 2020 and 2021. In addition, the highlighted themes reinforced the need to understand the performance of the participants and to include active, innovative, experimental methods to ensure the satisfaction and engagement of those involved.

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