

Unpacking business, management, and entrepreneurship education online: Insights from a hybrid literature review

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ABSTRACT

Business, Management, and Entrepreneurship (BME) education uncovers a valuable learning space within the online environment. Scholars and practitioners have embraced distinctive perspectives to explore BME education online. This led to a fragmentation of approaches and practices aimed at recontextualising BME education online. The article intends to overcome such fragmentation. For this purpose, it undertakes a hybrid literature review, consisting of a bibliographic analysis to map the scholarly debate on BME online education, and an interpretive review to systematize contemporary scientific knowledge. Drawing on a knowledge core of 106 articles, six clusters were identified through bibliographic coupling. The research streams embedded by the clusters deal with the challenges faced in the implementation of BME online education, such as the arrangement of online learning spaces, the promotion of collaboration among learners, the empowerment of instructors to address the learners' evolving needs, and the structuring of virtual educational institutions. Tailored interventions are required to avoid that BME online education paves the way for anomic learning. Virtual learning spaces should enrich interpersonal exchanges, engaging learners in co-creating value with instructors. Digital technologies enact unprecedented opportunities for online learning, leveraging rich social connections and expanding the reach of educational activities.

1. Introduction

Educational institutions face momentous changes within their general and task environment, which propels the shift towards new learning paradigms and modes emphasizing learners' engagement and imagination (Chia, 1996). Technological innovations enact new spaces and modes of learning (Wankel, 2009). They are accompanied by evolving educational needs and expectations of students, who are able to thrive and flourish in such new spaces (Drennan et al., 2005). Furthermore, the transformation of instructors' perspectives and perceptions (Hall, 2013) and the reconfiguration of the learners-instructors exchange (Williams et al., 2006) trigger the development of innovative educational processes (Mitchell et al., 2015). They rely on digitalization and virtualization to enhance the learners' experience and augment the contents of educational activities (Hwang, 2018).

Business, Management, and Entrepreneurship (BME) education is not exempt from these changes. In fact, it finds a fertile learning

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terrain in the online setting, which adds to the flexibility as well as to the appeal of traditional teaching methods and educational approaches (Schöbel et al., 2022). The aftermaths of the Coronavirus (Covid-19) pandemic, which resulted in restrictive measures to contain its spread, energized this transition (Brammer & Clark, 2020). Social distancing prescriptions nourished the digital transformation of BME education (Iivari et al., 2020; Yang & Huang, 2021). In the span of few weeks, educational institutions and instructors experienced the challenge of a thorough transition from face-to-face to distance learning, altering the time, space, and contents of learning environments (Agasisti & Soncin, 2021).

Whilst the need for ensuring education during the pandemic prompted a massive digitalization of educational activities (Lockee, 2021; Xie et al., 2020), the debate about the *pros* and *cons* of online education predates the Covid-19 pandemic (Hwang, 2018). As argued by Li et al. (2014), online education has been largely considered an enabling way to deliver learning experiences. Alongside meeting the educational preferences of new generations of students (Bhuwandeep et al., 2022), online education contributes to the fight against inequalities, ensuring the delivery of high-quality learning processes to remote areas, which can be reached by relying on information and communication technologies (Halkic & Arnold, 2019). However, online education also entails the risk of unequal and unfair access to educational activities. Previous studies pointed out that the digital divide enlarges the gaps perceived by underprivileged groups of the population in accessing online education (van de Werfhorst et al., 2022). Besides, Bonnici et al. (2016) maintained that the effectiveness of online education depends on balancing the students' needs and the instructors' teaching preferences: inability to deal with such issue impoverishes the quality and contents of educational activities delivered online (Cater et al., 2012).

Even though online education was rampant in the BME field long before the Covid-19 pandemic (Kumar et al., 2019) and scholars were consistent with maintaining the role of digital tools in educational activities (Whitaker et al., 2016), and yet instructors do not necessarily possess adequate and robust experience with online education (Apak et al., 2021). Besides, educational institutions across the globe has been struggling to adapt their organisational processes and management practices to the online learning space (Rana et al., 2022; Szopiński & Bachnik, 2022). Despite these constraints, from an initial state of confusion and distress, new approaches and means to carry on learning processes have been implemented, pushing forward educational institutions' ability to thrive in the post-Covid-19 pandemic world (Chaturvedi et al., 2021).

The article intends to contextualize the state of the art of scholarly knowledge about the implementation of online education in the BME field, providing an in-depth critical reflection on this topic. More specifically, the study articulates a hybrid literature review, which fulfils two aims. First, it maps the scientific debate on methodologies and approaches applied to online education, identifying the main streams through which it unfolds. Second, it delves within and across the streams, arranging an interpretive review of current research. This approach enabled us to answer the call for a systematization of scientific contributions investigating the opportunities disclosed by digitalization (Mozahem, 2021a, 2021b), the arrangement of BME online courses (Andrade et al., 2022), and the recontextualization of instructor-student exchanges online (Albert et al., 2021). The article proceeds as follows. The next section describes the research protocol used to collect the items included in our literature review. The third section reports the findings, arguing the contents of the research streams and highlighting the key themes addressed in the scholarly debate. The fourth section proposes a critical discussion of the study results. It paves the way for the concluding section, where we argue the implications obtained from our literature review.

2. Methodology

Consistently with our introductory aspirations, this article aims at advancing our understanding of the unfolding trajectories of BME online education, delving into its evolution as a study domain (Selvaraja et al., 2021; Shrestha et al., 2022). Hence, a domain-based literature review was implemented, conceiving BME online education as a substantive research topic (Palmatier et al., 2018). In line with the twofold nature of our research, we took a hybrid approach to conduct this literature review (Palumbo et al., 2022). On the one hand, we implemented a bibliographic analysis, allowing us to spot the research streams articulating the scholarly debate on BME online education. On the other hand, we organised an interpretive approach to systematize retrieved contributions and work out an interpretive review of the extant scholarly knowledge. A dependable review of a study domain relies on adopting a consistent and replicable protocol (Paul & Criado, 2020). Drawing on Paul et al. (2021), we stick to the Scientific Procedures And Rationales for Systematic Literature Reviews (SPAR-4-SLR) to accomplish our study. Compared with alternatives available, such as the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), this protocol was explicitly conceived for social sciences and enabled us to enhance the transparency of our review (Tsiotsou & Boukis, 2022). It unfolded across three stages: 1) assembling the scientific contributions; 2) arranging the exclusion criteria and screening the dataset accordingly; and 3) assessing the included items through bibliographic coupling and interpretative review. The guidelines recommended by Tranfield et al. (2003) were followed to systematize the extant scholarly knowledge.

2.1. Assembling

During the assembling stage, we accomplished a preliminary analysis to generate a representative list of terms to include in our research string. After several trials, we agreed on the most relevant terms to attain the largest volume of contributions previewing the state of the art in the field of BME online education. The assembling stage was conducted through Clarivate Analytics' Web of Science™ and Elsevier's Scopus®, broadly acknowledged as the most reliable sources for conducting literature reviews (Randhawa et al., 2016). We confronted the two databases. Scopus® produced the most comprehensive array of items, which also included the records indexed in Web of Science™. Hence, we elected Scopus® as the data source for our literature review. We run the search string that

follows on January 13th, 2022:

((TITLE-ABS-KEY ("remote*" OR "distan*" OR "virtual*" OR "digit*" OR "online" OR "on line") AND TITLE-ABS-KEY ("techn*" OR "meth*" OR "approach*" OR "tool*" OR "styl*" OR "practic*") AND TITLE-ABS-KEY ("manage* teach*" OR "manage* educat*" OR "business teach*" OR "business educat*" OR "entr* teach*" OR "entr* educat*")) AND (LIMIT-TO (DOCTYPE, "ar") OR LIMIT-TO (DOCTYPE, "re")) AND (LIMIT-TO (SUBJAREA, "SOC") OR LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "ECON") OR LIMIT-TO (SUBJAREA, "DECI") OR LIMIT-TO (SUBJAREA, "PSYC") OR LIMIT-TO (SUBJAREA, "MULT")) AND (EXCLUDE (PUBYEAR, 2022)) AND (LIMIT-TO (LANGUAGE, "English"))

The query resulted in a list of 643 documents handled to the next stage.

2.2. Arranging

Arranging started with a meeting to discuss the exclusion and inclusion criteria. We intended to fetch the contributions within the BME education realm that were consistent with the aims of our literature review. We screened the retrieved contributions based on three exclusion criteria: 1) no direct relationship with the study topic (*i.e.*, contributions which did not deal with BME education); 2) no direct relationship with the scope of our research (*i.e.*, irrelevant reports which did not deal with online and/or virtual teaching); 3) no direct relationship with the study focus (*i.e.*, records that did not deal with practices/tools/approaches targeted to online and/or virtual education). As a result of the screening, we excluded 499 papers, 158 of which were off topic, 312 off scope, and 24 off focus. Moreover, we retrieved 2 editorials and 3 case studies which were omitted due to their limited contribution to the study purpose. The finalized dataset consisted of 144 relevant and impactful contributions.

2.3. Assessing

Assessing was twofold. Firstly, we conducted a bibliographic analysis to identify the research streams linking the included documents. We used bibliometric coupling as the aggregating mechanism: it articulates links across contributions by analyzing shared references (Kessler, 1963). This technique has been widely adopted for systematizing scholarly knowledge about novel concepts across different fields (*e.g.*, Palumbo & Fakhar Manesh, 2021; López-Fernández et al., 2016). Moreover, it has been proven to showcase key knowledge areas by interpreting past citation relations among examined documents (Boyack & Klavans, 2010). Bibliographic coupling permitted us to retrospectively envision the intellectual structure within retrieved contributions, highlighting the ongoing trends in the study domain. Furthermore, it prospectively allowed us to preview the direction of the latest topics addressed by the scientific literature.

The core analysis was implemented through VOS viewer (*vers. 1.6.10*), which operates based on the visualization of similarities

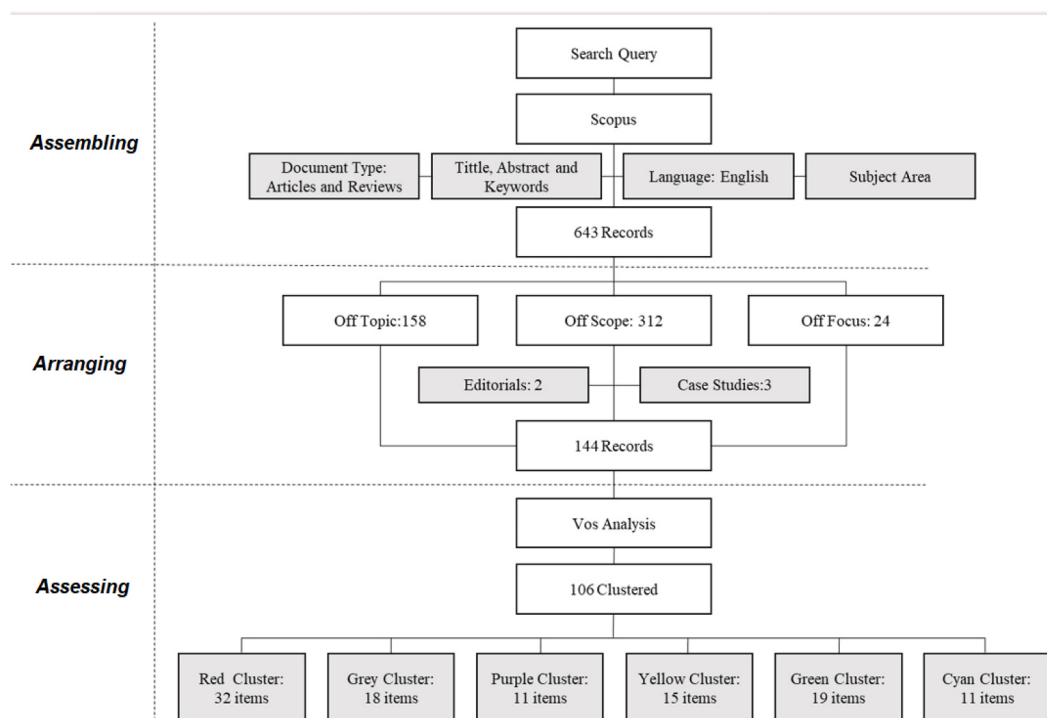


Fig. 1. The graphical representation of the study protocol.

technique (Van Eck & Waltman, 2010). VOS viewer runs a mathematical process generating a two-dimensional map. A similarity matrix is calculated based on references shared among the reviewed documents. Each cluster includes the records with highest similarity measures. We discarded records with a null total link strength to focus on core documents with meaningful connections. We did not set any thresholds for the bibliographic coupling to maximize the comprehensiveness of the analysis. We put the minimum cluster size at 10 items to avoid the extraction of clusters with limited similarity. Through this routine, we found 106 core items bibliographically coupled. Fig. 1 graphically depicts the study protocol in a flow diagram. Fig. 2 displays the two-dimensional map which resulted from the bibliographic coupling. Items are located based on their similarity measure: the closer the items, the stronger their association. Altogether, we identified 6 clusters, which we investigated using an interpretive approach.

3. Findings

Appendix “A” reports the complete list of reviewed items. Fig. 3 reports the cumulative distribution of the articles included in our literature review ($n = 106$) across time. Two primary considerations result from the temporal analysis of reviewed contributions. Although our study domain initially aroused limited attention, it started generating interest in 1994 (Gregor & Cuskelly, 1994). The acceleration of digital transformation brought about by the Covid-19 pandemic fuelled scholarly concern about this topic, as demonstrated by the spiralling growth over the last two years (Vlachopoulos, 2020).

The most active journals publishing articles about online education in the BME field are the *Journal of Management Education*, *Sustainability*, *The International Journal of Management Education*, and the *International Journal of Management in Education*, which respectively published seven, six, four and three articles throughout the period of investigation. Looking at the geographical contexts of reviewed items, some interesting aspects emerge (see Table 1). First, the United States lead the way in the study domain, accounting for about one in five studies. Europe, Asia, and Oceania follow. However, a significant part of items included in this study adopts an international perspective, delivering a comparison at the continental or cross-continental level. A substantial discrepancy between developed and developing or underdeveloped countries emerged, with the latter receiving less attention in the scholarly debate.

Table 2 illustrates the research designs employed in the reviewed contributions. Quantitative methodologies represent the most common research design, with the exception of the grey cluster. Nevertheless, qualitative research is the most used approach to scrutinize how to arrange virtual spaces fostering students’ collaboration. Qualitative research has not been used to explore how to manage exchanges and interactions in online education and address the needs of the e-learning generation. Literature reviews, apart from the green cluster, are almost missing in almost all clusters, indicating that there were few attempts to systematize the scholarly debate concerning online education in the BME context. All clusters hosted at least one contribution using a mixed-method design. Lastly, about one in four publications proposed a conceptual advancement.

Following the protocol proposed by De Bakker et al. (2005), we investigated the epistemological orientation of the six thematic clusters, displayed in Table 3. Accordingly, we classified items into theoretical, prescriptive, and descriptive contributions. Besides, we divided theoretical publications into conceptual papers, exploratory papers based on empirical data, and evidence-based predictive documents. Within the prescriptive group, instrumental papers provide points for practitioners, while normative papers deliver

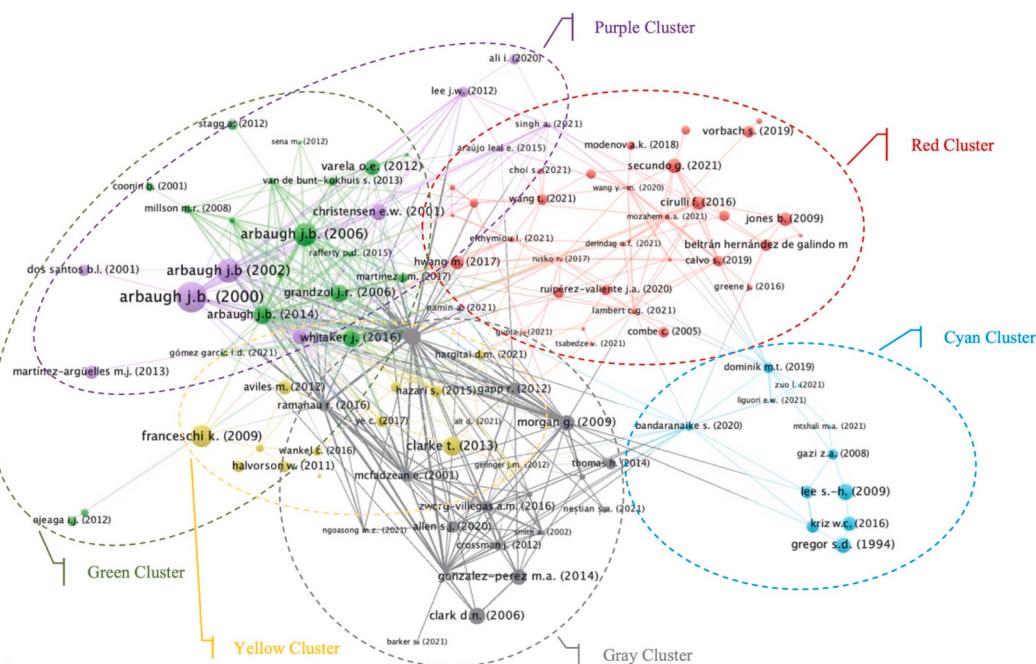


Fig. 2. The results of bibliographic coupling.

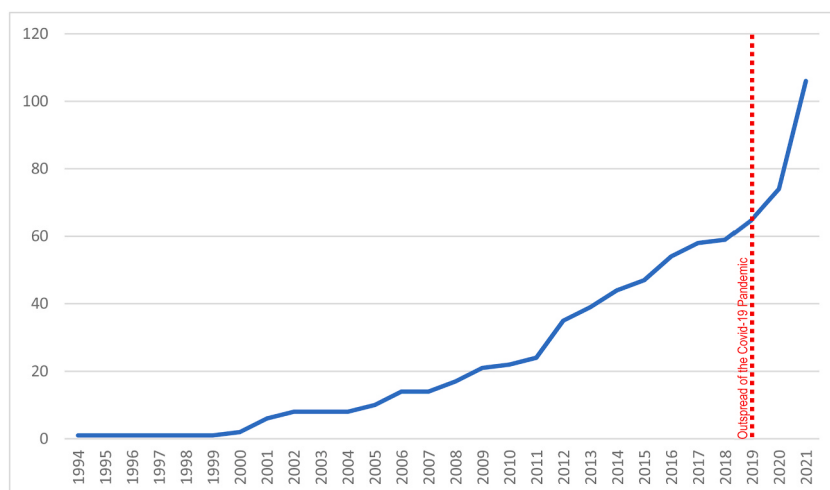


Fig. 3. The cumulative distribution of articles over the period of analysis.

practical recommendations from an ethical point of view. Finally, descriptive papers report data or opinions without providing immediate contributions to theory and/or practice. Altogether, theoretical contributions prevailed in all thematic clusters, pointing out that most publications focus on developing conceptual insights. A large number of publications focused on delivering prescriptions to practitioners and professionals. This is particularly true in the red cluster, where half contributions were intended to advise instructors on how to approach BME education online.

The six thematic clusters identified in this literature review demonstrate that the debate on BME online education is continuously evolving. Table 4 summarises the key themes emerging in the six clusters, providing an overview of the state of the art. Appendix “B” delivers additional information about the methodological approaches taken across reviewed studies.

3.1. The red cluster: the future of BME online education between openness and closure

The main theme emerging from the red cluster concerns online courses targeted at a large number of people. Massive Open Online Courses (MOOCs) entail a reconfiguration of conventional teaching methods (Derindag & Cizmeci, 2021), connecting people who are geographically distant to foster knowledge sharing and dissemination (Žur, 2020). Leveraging the openness of online digital materials (Cirulli et al., 2016), MOOCs reach thousands of people, enhancing their access to BME education (Mozahem, 2021a, 2021b). The main advantage disclosed by MOOCs is that they are flexible in time and space (Vorbach et al., 2019), facilitating the delivery of high-quality educational activities in contexts that have weaker educational traditions (Chisita & Tsabedze, 2021).

A recent line of research addresses the privatisation of MOOCs, which restrains the accessibility to educational resources, focusing on the learning experiences of particular groups of users (Ruipérez-Valiente et al., 2020). This is aimed at curbing the shortcomings of MOOCs, which are generally affected by low completion rates and limited opportunities for networking (Beltrán Hernández de Galindo et al., 2019). Drawing on the retrieved literature, the integration of synchronous and asynchronous communication channels (Rusko, 2017), business simulations (Hwang & Cruthirds, 2017), and video games for learning experiences (Solarte et al., 2021) might increase the interactions among students involved in MOOCs, fostering their commitment to educational activities.

3.2. The grey cluster: arranging virtual spaces for students' collaboration

The grey cluster focalises on virtual collaboration among students. Virtual educational activities overcome physical constraints, propelling propositional and experiential learning in large groups (O'Connor et al., 2021). Also, they promote intercultural exchanges, advancing the learners' cross-cultural competencies (Zwerg-Villegas & Martínez-Díaz, 2016). Due to the increased flexibility of educational activities (Smith, 2002) and broader opportunities for interactive learning (Ngoasong, 2021), BME online education fits with the implementation of learning processes that rely on students' involvement as co-producers of teaching sessions (Adinolfi & Giancotti, 2021).

For this to happen, pedagogical approaches should be associated with the evolving attributes of learning technologies (Morgan & Adams, 2009). They should offer students an extra set of skills, enabling them to function effectively in the labour market, which is increasingly oriented towards virtualization (Allen, 2020). Moreover, pedagogical approaches should be targeted to develop intercultural skills (Crossman & Bordia, 2012), stimulating students to better understand cross-cultural issues (Gonzalez-Perez et al., 2014). Whilst online education increases the students' ability to acquire cross-cultural skills, they might lose cultural insights that can be acquired only through face-to-face experiences. Therefore, online education should be enriched, stimulating students' direct interaction with other cultures (Ramanau, 2016).

Table 1

An overview of geographical contexts examined in selected contributions.

Continent	Research Context	Red Cluster	Grey Cluster	Purple Cluster	Yellow Cluster	Green Cluster	Cyan Cluster	Research Context	Whole Continent
Africa	<i>Eswatini</i>	2	0	0	0	0	0	2	5
	<i>Nigeria</i>	0	0	0	0	1	0	1	
	<i>South Africa</i>	0	0	0	0	0	1	1	
	<i>Continental</i>	0	1	0	0	0	0	1	
	Overall Cluster	2	1	0	0	1	1		
Asia	<i>China</i>	1	0	0	0	0	0	1	12
	<i>Hong Kong</i>	1	0	0	0	0	0	1	
	<i>India</i>	2	0	1	1	2	0	6	
	<i>Israel</i>	0	0	0	1	0	0	1	
	<i>Singapore</i>	0	1	0	0	0	0	1	
	<i>Taiwan</i>	1	0	0	0	0	0	1	
	<i>Turkey</i>	1	0	0	0	0	0	1	
	Overall Cluster	6	1	1	2	2	0		
Europe	<i>Cyprus</i>	0	0	0	0	0	1	1	20
	<i>Finland</i>	1	0	0	0	0	0	1	
	<i>Germany</i>	0	0	0	0	0	1	1	
	<i>Hungary</i>	0	0	0	1	0	0	1	
	<i>Italy</i>	2	1	0	0	0	0	3	
	<i>Nederland</i>	0	1	0	0	0	0	1	
	<i>Romania</i>	0	1	0	0	0	0	1	
	<i>Russia</i>	1	0	0	0	0	1	2	
	<i>Spain</i>	1	0	1	1	0	0	3	
	<i>U.K.</i>	3	0	0	1	0	0	4	
	<i>Continental</i>	2	0	0	0	0	0	2	
	Overall Cluster	10	3	1	3	0	3		
North America	<i>Canada</i>	0	1	0	0	0	0	1	25
	<i>Mexico</i>	0	0	0	0	0	1	1	
	<i>U.S.A.</i>	4	0	5	4	7	3	23	
	Overall Cluster	4	1	5	4	7	4		
Oceania	<i>Australia</i>	0	2	0	1	1	3	7	10
	<i>New Zealand</i>	0	1	1	0	0	0	2	
	<i>Continental</i>	0	1	0	0	0	0	1	
	Overall Cluster	0	4	1	1	1	3		
South America	<i>Brazil</i>	0	0	1	0	0	0	1	5
	<i>Colombia</i>	1	1	0	0	0	0	2	
	<i>Continental</i>	1	0	0	0	1	0	2	
	Overall Cluster	2	1	1	0	1	0		
Cross-continental		5	3	1	2	3	0	14	
n.a.		3	4	1	3	4	0	15	
Total		32	18	11	15	19	11	106	

Table 2

The selected contributions by cluster and study design.

	Red Cluster	Grey Cluster	Purple Cluster	Yellow Cluster	Green Cluster	Cyan Cluster	Overall
<i>Literature Review</i>	2	0	1	0	4	0	7
<i>Qualitative</i>	7	6	0	0	4	2	19
<i>Mixed</i>	7	2	2	2	1	2	16
<i>Quantitative</i>	12	4	6	7	6	5	40
<i>N/A</i>	4	6	2	6	4	2	24
Overall	32	18	11	15	19	11	106

Table 3

The selected contribution by cluster and epistemological orientation.

		Red Cluster	Grey Cluster	Purple Cluster	Yellow Cluster	Green Cluster	Cyan Cluster	Overall
Theoretical	Conceptual	2	2	1	1	4		10
	Exploratory	9	7		2	4	3	25
	Predictive	5	2	7	6	6	5	31
Prescriptive	Instrumental	14	5	2	5	2	1	29
	Normative					1		1
Descriptive	Descriptive	2	2	1	1	2	2	10
Overall		32	18	11	15	19	11	106

Table 4

Key evidence on business, management, and entrepreneurship online education.

Cluster	Key evidence
Red Cluster: <i>The Future of Online BME Education Between Openness and Closure</i>	Online courses targeted at a large number of users, such as MOOCs, augment the BME education coverage, bringing it to the most disadvantaged and deprived areas of the world. However, they suffer from low completion rates and fall short in terms of customization of educational activities.
Grey Cluster: <i>Arranging Virtual Spaces for Students' Collaboration</i>	The online setting of BME courses empowers students to acquire and develop team management and intercultural skills, which are particularly important in the job market of the future. Nevertheless, it is necessary to align students' needs and advanced technologies, establishing vivid and appealing online learning contexts.
Purple Cluster: <i>Managing Exchanges and Interactions in Online Education</i>	The online context of education makes blurs interactions and connections between students. From this standpoint, instructors implementing online BME courses should consider using different technologies and communication tools to meet the evolving students' needs.
Yellow Cluster: <i>Addressing the Needs of the E-Learning Generation</i>	Innovative technologies and online platforms are increasingly popular among new generations. Similarly, students' preferences and appeal for ICT- and web-based tools and platforms targeted to addressing their pedagogical needs evolve, making the shift to online teaching a must for educational institutions.
Green Cluster: <i>The Need for Training Targeted to Online Teaching</i>	Although technology is a valuable support to online education, instructors are pivotal in arranging and implementing effective pedagogical process which are centered on students' needs and expectations. Accordingly, it is crucial to involve instructors in focused training courses, enabling them to effectively perform in BME online education settings.
Cyan Cluster: <i>Designing and Implementing E-Learning Organisations</i>	Implementing online courses and curricula requires a comprehensive redesign of organizational processes implemented by educational institutions. It is essential to implement changes allowing teachers to balance available technologies and pedagogical decisions to add to online education's effectiveness.

3.3. The purple cluster: managing exchanges and interactions in online education

The third cluster includes documents focusing on managing students' interactions in virtual settings. Involving students and creating an environment where they feel free to interact is more challenging online than physically (Arbaugh, 2010). Despite the prominence of technological features, the key driver for the success of online courses is the instructors' capability to encourage exchanges among students and among instructors and students in boundaryless learning settings, which do not facilitate spontaneous interactions (Arbaugh, 2002).

Adopting synchronous and asynchronous communication channels to foster proactive interactions and provide students with educational support is a successful way to deal with these challenges (Ali et al., 2020). Among others, Dos Santos and Wright (2001) provide examples of technologies that fit this purpose, such as bulletin boards, multimedia lectures, and instant messaging. The pedagogical purpose of such tools is not limited to advancing interaction, but they also positively affect students' presentation skills (Namin et al., 2021). However, as far as instructors do not perceive technology as an ally that brings tangible benefits to individual and collective learning experiences, online education is expected to fall short in increasing students' engagement in educational activities (Leal & Albertin, 2015).

3.4. The yellow cluster: addressing the needs of the E-learning generation

The yellow cluster deals with the issue of attracting and engaging new generations – especially the born-digital ones – in BME education. Millennials appreciate learning experiences integrating digital devices and technologies (e.g., personal computers, web-based resources, and virtual tools) in educational activities (Aviles & Eastman, 2012). Social media and web 2.0 applications (e.g., YouTube, Facebook, and LinkedIn) are increasingly popular among students (Wankel, 2016), who perceive that they augment their learning experience, boosting the ability to retrieve information and accelerating knowledge sharing (Bhandari et al., 2021). For example, López-Carril et al. (2020) found that watching and discussing TED Talks within an online course positively impacts students' learning experience.

An appealing perspective emerges from using virtual worlds in BME education (Klein et al., 2014). Virtual worlds facilitate real-life simulations (Eckelman et al., 2011) and give students direct and straightforward experiences with business cases (Halvorson et al., 2011). Besides, they enact a webspace boosting interactions between students and instructors (Franceschi et al., 2009). The critical

aspect to consider when designing online courses based on virtual worlds is the focus on the evolving students' needs. They affect how students interact with communication tools, thus influencing the effectiveness of online education (Hargitai et al., 2021).

3.5. The green cluster: the need for training targeted to online teaching

Contributions included in the green cluster investigate the effectiveness of BME online education. Studies focusing on this issue date back to the first decade of the new century, when Millson and Wilemon (2008) argued that dialogue, structure, ease of access, and flexibility of online courses positively affect the quality of online management education. More specifically, synchronous collaborative tools enabling continuous exchanges among students and between students and instructors (e.g., online meetings) add to the effectiveness of BME learning (Sena et al., 2012). However, technologies should not overcome the central role of instructors, who are the core of BME education, giving a human touch to virtual education (Arbaugh, 2014).

Recontextualising learning activities in the digital environment requires instructors to develop specific skills and knowledge (García & Cabañas, 2021). Furthermore, instructors should stick to behavioural patterns that are consistent with virtual learning processes (Varela et al., 2012), get innovative pedagogical approaches (Krishnan, 2012) and design appropriate courses within a virtual setting (Rickley & Kemp, 2021). When instructors are not properly trained, there is the risk that lack of knowledge and poor confidence with technologies lead to students' negative perception of educational services and, consequently, to less impactful learning experiences (Ojeaga & Igbinedion, 2012). From this standpoint, tailored training programmes should be designed and implemented, making instructors aware of how to design online courses and curricula that comprehensively meet the students' evolving expectations (Rao & Vijayalakshmi, 2021).

3.6. The cyan cluster: designing and implementing E-learning organisations

The cyan cluster relates to the organisational and management changes needed to deliver effective BME online education. The Covid-19 pandemic and the restrictive measures aimed at containing it prompted educational institutions to design and implement unprecedented transformations (Liguori et al., 2021). More than 25 years ago, Gregor and Cuskelly (1994) stressed the necessity of understanding which kind of transitions are needed to integrate distance tools into conventional face-to-face pedagogical processes. Implementing online courses and curricula requires making integrated technological and educational choices that should be completely aligned with the attributes of learning processes (Lee et al., 2009).

These considerations call for an adaptation of online education to the targets of BME education, such as executives (Jones & McCann, 2005) and doctoral students (Walker, 2008). Decisions have to be made about how to integrate conventional learning activities with innovative teaching approaches taking advantage of business games and simulations (Kriz & Auchter, 2016). Attention should be also paid to assessing the learning performances of students who participate in heterogeneous teaching activities using tailored measurement approaches and techniques (Mtshali, 2021). Finally, the way noncore services are outsourced to meet the students' needs should be carefully investigated (Zuo et al., 2021). A Total Quality Management (TQM) perspective could support in taking such management decisions, sustaining the excellence of learning experiences by aligning the structural (hard) and behavioural (soft) attributes of online education (Gazi et al., 2008).

4. Discussion

The overarching theme merging the six thematic clusters concerns the opportunities for BME education disclosed by the recontextualization of learning experiences in the virtual setting. The simplified access to online learning experiences makes it possible to deliver BME education in geographical contexts where this domain is less advanced or poorly acknowledged (Halkic & Arnold, 2019). This is particularly true where open online courses are concerned, such as MOOCs. They enable a large number of people to participate in educational activities, advancing their knowledge and understanding of BME-related topics (Žur, 2020). Ensuring inclusive and equitable quality of education around the globe is one of the 17 sustainable development goals included in the 2030 Agenda for Sustainable Development promoted by the United Nations (Taneja-Johansson & Singal, 2021; Zvavahera et al., 2022). Online tools and open platforms are an arrow in the institutional quiver to achieve high-quality BME education across the globe, especially if the recognised limitations of online education, such as low completion rates and constrained networking opportunities, are addressed (Beltrán Hernández de Galindo et al., 2019).

A different approach to BME online education is that of online courses developed for a restricted number of students. Designing and implementing BME online courses allow students to develop crucial skills consistent with the attributes of today's labour market, such as virtual teamwork and intercultural skills (Allen, 2020). Hence, it is important to reflect on the inclusion of online courses in BME education. Nevertheless, arranging online courses involves reshaping management practices and reframing pedagogical approaches to sustain the transformation of learning activities in a digital perspective (Arbaugh, 2014). The most obvious challenge concerns the technological transition. Different technological adjustments are required to reach the full potential of online BME education. This implies that instructors should get acquainted with information and communication technologies used to design online teaching activities, such as synchronous and asynchronous communication devices. Furthermore, they should familiarize themselves with innovative pedagogical approaches to augment the contents and the impact of learning experiences (Rao & Vijayalakshmi, 2021). The success of online education relies on a constant tension towards aligning technological developments with students' needs and expectations, making them service co-producers and value co-creators in digitally enabled learning contexts (Aviles & Eastman, 2012).

Being familiar with technologies and digital tools might not be enough since the virtual setting affects how students interact with

each other and the instructors (Leal & Albertin, 2015). Instructors should acknowledge how to manage one-to-one, one-to-many, many-to-one, and many-to-many interactions in virtual settings, sustaining collaboration in online environments from a behavioural point of view. Furthermore, the virtual domain requires recontextualising learning activities and putting in place pedagogical approaches that best fit the digitalization of educational processes (Lee et al., 2009). In a nutshell, implementing online courses in BME education requires specific training for instructors, who should get adequate hard and soft competencies about how to thrive in a virtual learning context (Rao & Vijayalakshmi, 2021).

These points lead to widening the subject of the discussion to the organisational level. Instructors operate within an organisational context, whose boundaries are blurred by the virtualization of teaching activities (Arbaugh, 2002). Therefore, the effectiveness of online courses is established on educational institutions' ability to implement organisational transformations consistent with the digitalization of learning activities (Palumbo & Manna, 2019). Embracing the socio-technical perspective as a lens to see organisations involved in BME online education offers some food for thought (Emery & Trist, 1965). Organisations interact with their environments from both a social and a technical perspective (Fuenfschilling & Truffer, 2014). These two sides should be aligned in crafting effective organisational structures and management practices to achieve excellence, merging technical artefacts and social dynamics to accomplish an engaging learning experience (Appelbaum, 1997).

4.1. Implications and avenues for future developments

The study findings provide practical implications and envision promising avenues for further research. Starting from the first cluster, designing and implementing open online courses aimed at a large number of people entails arranging an integrated system of digital tools that boost users' involvement and increase the completion rate of educational activities. Future research is needed to define the contents of such an integrated system, pointing out which digital tools are most effective in stimulating students' active participation in co-creating valuable learning experiences. Since institutional and cultural factors influence the effectiveness of online education, particular attention should be paid to underdeveloped and disadvantaged geographical areas. More specifically, an effort should be made to stress the role of local and foreign institutions in promoting BME online education in such contexts, bridging the gaps preventing students from accessing high-quality BME educational activities.

The quality of BME online education relies on the depth and richness of exchanges among students and between students and instructors. Service co-production is a secret sauce for successful BME online education. However, innovative digital solutions are needed to involve students in co-design and co-delivery learning activities. Online education providers should be constantly updated about the opportunities for value co-creation disclosed by technological advancements. To shed light on this issue, future research should illuminate the level of digital and online literacy of instructors and students, which enables them to co-create value in the online setting. This research effort should be conducted at national and international levels, conceiving tailored plans to fill literacy gaps

Table 5
Practical implications and avenues for future research.

	Practical implications	Key research questions triggering future developments
Red Cluster: <i>The Future of Online BME Education between Openness and Closure</i>	An integrated system of digital tools (e.g., synchronous and asynchronous tools, business simulations) should be designed to make BME online education consistent with the needs and expectations of students, engaging them and increasing completion rates	What is the mix of digital tools to increase engagement and completion rates in open online courses? What is the role of local and foreign institutions to promote online open BME courses in underdeveloped or developing countries?
Grey Cluster: <i>Arranging Virtual Spaces for Students' Collaboration</i>	In the design phase of online courses, it is necessary to think about and include digital tools and teaching activities that involve students and conceive them as value co-creators. Efforts should be made to align evolving technological tools with pedagogical choices	What is the level of digital and virtual literacy of instructors and students in the BME field? How can we improve individual and collective digital literacy?
Purple Cluster: <i>Managing Exchanges and Interactions in Online Education</i>	Instructors should promote rich instructor-student and student-student interactions. Using different but complementary digital tools, such as synchronous and asynchronous tools, to communicate and perform learning and teaching activities increases interactions within BME online courses	How confident are BME instructors in using digital communication tools? What are the hard and soft skills that instructors should possess to manage online exchanges with students?
Yellow Cluster: <i>Addressing the Needs of the E-Learning Generation</i>	The learning needs of students are evolving. A continuous exchange of information among educational institutions, instructors, and students regarding the new generations' educational preferences should be facilitated	How are students' needs and preferences evolving? Which kind of digital tools are most fitting to deal with the evolving needs of students?
Green Cluster: <i>The Need for Training Targeted to Online Teaching</i>	Instructors are pivotal actors of BME online learning processes. The arrangement of tailored training courses on how to design, implement, and deliver online BME education is crucial	What are the competences and skills gap perceived by instructors in designing, implementing, and delivering online BME courses? How many teachers have received training on how to design, implement, and deliver online BME courses?
Cyan Cluster: <i>Designing and Implementing E-Learning Organisations</i>	Delivering BME online courses is based on appropriate organisational change initiatives. If there is no support from the entire organisation, online education is doomed to fail	Which theories and perspectives can help us in reading and understanding organisational changes accommodating the digitalization of BME education? What is the process guiding educational institutions towards the implementation of online education?

across the globe.

Encouraging interactions in online settings is more challenging than fostering students' exchanges in physical contexts. Teacher-student and student-student interactions are often complicated by physical distance and lack of awareness of the most appropriate approaches to interact in the virtual environment effectively. To cope with this problem, social and cultural proximity among students and instructors should be encouraged, removing obstacles to the exchange of ideas and opinions. From this standpoint, future research should aim to map students' and instructors' reactions to the implementation of digital tools to promote social exchanges and interactions.

The yellow cluster prompts us that students' learning preferences and needs continuously evolve, following technological trends. The role of instructors and educational institutions in tracking and addressing these evolutions is central. Since what is valid today may not necessarily hold tomorrow, instructors should be empowered to investigate, update, and systematize students' learning needs and preferences. Furthermore, it is necessary to align digital strategies and tools reconfiguring educational institutions' learning processes with students' expectations to advance the quality of learning experiences. Regardless of technological developments and the evolution of students' expectations, the green cluster insists on the centrality of instructors in the educational process. Technology is an ancillary component of BME education. However, conscious selection and use of the right digital tools is critical to effectively deliver online learning activities. Therefore, tailored courses for instructors about designing, implementing and delivering BME online courses are essential. Such courses empower instructors to craft and implement the most fitting approaches to engage students and emphasize the human touch throughout the learning experience. Hence, it is interesting to investigate the skills and competencies that instructors should possess to boost the quality of BME online courses. Besides, since the Covid-19 pandemic led almost all BME lecturers to provide online courses, it would be interesting to know how many of them have attended training courses. Such evidence is expected to provide additional insights into how to steer educational institutions' digital transformation.

Providing BME education online requires organisational change initiatives, encompassing the management and implementation of new technologies that support the digitalization of teaching modes and practices. Adhering to a socio-technical perspective, structural transformations should be accompanied by behavioural transitions. Future research should investigate which tools and theoretical perspectives can support organisations in dealing with the challenge of sustaining the digital transformation of BME education, by merging structural change with soft transformations that align the revised organisational architectures with the evolving needs and attitudes of students and instructors.

Table 5 summarises the key implications and the avenues for future research disclosed by the six clusters. Implications and perspectives cover three main levels of analysis for future research: micro (*i.e.*, instructors and students), meso (*i.e.*, courses and learning experiences), and macro (*i.e.*, educational institutions). Even though these three levels have regularly been studied individually, an effort should be made to systematize them in a homogeneous framework. Moreover, they should be contextualized to the new normality triggered by the digitalization of BME education.

4.2. Study limitations

The study findings should be read in light of the limitations that affected this study. Our review focused on online education in BME. Therefore, it is not possible to generalize the study findings beyond this particular field. However, far from nurturing partial considerations, our literature review provides intriguing insights that can be easily applied to other educational domains. The decision to focus on Elsevier's Scopus® to retrieve relevant items constrained the depth of our research. Nevertheless, it enabled us to streamline the process of items collection and selection, improving the replicability and reliability of our review. Lastly, using an interpretive approach might have blurred the report of the study results with subjective biases. Notwithstanding, it permitted us to deliver a comprehensive account of the contents of each research stream, adding to the originality and relevance of this literature review.

5. Conclusions

BME education finds a fertile context to thrive and flourish in the online environment. This does not prompt us to express an unconditioned positive opinion about online education. Rather, the article delivers an invitation to reflect on a study domain that, regardless the boost released by the Covid-19 pandemic, has consistently received attention in the scholarly debate. The six research streams from our literature review encourage us to observe that implementing online education in BME is far from easy. However, both students and instructors have been argued to benefit from online education, experiencing augmented learning activities.

Literature on BME online education is rich in regard to distinctive insights and inspirations, which were critical to cope with the sense of confusion and fear triggered by the Covid-19 pandemic. Evidence collected through this literature review help us in emphasizing the contribution of online education in building resilience in the BME context, empowering educational institutions to overcome unforeseen crises in the future. Scholars have discussed the practices, approaches, and tools we can use to manage the unexpected and coexist with environmental turbulence and uncertainty. However, much more should be done, envisioning how the digitalization of BME education alters the contents and shape of interpersonal exchanges among students and between students and instructors, critically impacting the quality of educational activities and, consequently, learning outcomes.

Authors statement

Although the authors evenly contributed to the realization of this work, Damiano Petrolo was primarily involved in Conceptualization; Supervision; Validation; Writing - original draft; and Writing - review & editing; Mohammad Fakhar Manesh was involved in

Data curation; Formal analysis; Methodology; Writing - original draft; and Writing - review & editing; Rocco Palumbo was involved in Conceptualization; Formal analysis; Validation; Visualization; Roles/Writing - original draft; and Writing - review & editing.

The authors have no competing interest to declare.

Data availability

No data was used for the research described in the article.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ijme.2023.100812>.

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