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RESEARCH ARTICLE

Barriers to dynamic capabilities in non-leading HEIs in the digital era

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Abstract
This study investigates the barriers that hinder the non-leading Brazilian higher education institutions (HEIs) in repositioning within the digital landscape based on dynamic capabilities. In-depth semi-structured interviews with top managers at six non-leading HEIs show that the main barriers include uncertainty about the traditional HEI future in the digital scenario, lack of strategic tools to reposition the HEIs, lack of knowledge about the cost-benefit of an institution's digitization, lack of knowledge on how to implement changes, and lack of information on if an HEI should (or not) meet all the new stakeholder needs. These barriers prevent HEIs from successfully adapting to the digital era. Methodologies and tools are required to guide strategic decisions, perform digitization's cost-benefit analysis, and implement changes that meet stakeholders' evolving demands. By overcoming these barriers, HEIs can effectively implement dynamic capabilities, transforming the challenges of the digital age into opportunities for growth and innovation.

Keywords: dynamic capabilities view; institutional knowledge; technological change; strategic knowledge capabilities; organizational change

Introduction

Non-leading Brazilian higher education institutions (HEIs) face significant challenges adapting to the growing digital landscape, particularly with the rise of distance learning (DL). The substantial increase in DL enrollments in Brazil (474% in the past decade) and the shift in total enrollments from 15% in 2013 to 49% in 2023 underscore this trend (INEP, 2022, 2024). This growth is accompanied by a 12% decrease in the number of professors in the private sector, indicating a shift toward digital learning options (INEP, 2022, 2024). While the financial significance of DL is evident, with the five largest private educational groups generating approximately USD 3.1 billion in annual net revenue in 2023 (Ânima – RI, 2023; Cogna RI, 2023; Cruzeiro do Sul – RI, 2023; Ser Educacional RI, 2023; Yduqs – RI, 2023), the economic difficulties faced by some significant DL providers highlight the challenges and opportunities of this evolving landscape (B3, 2023). The analysis of such information suggests that the digital era presents a considerable challenge and potential opportunities for growth and adaptation for traditional, non-leading Brazilian HEIs, mainly through the strategic adoption of DL.

The need for organizational change in response to digitalization is widely acknowledged, with warnings that failure to adapt could lead to significant negative consequences (BBC, 2015; Omniraza, 2023; WEF, 2020). However, not all change initiatives are successful, and the potential for negative

impacts raises concerns about the future of some HEIs in the digital era, especially when considering the misalignment between the offerings of traditional institutions and the evolving demands of stakeholders. A study found that HEIs are challenged to improve their course design (Gupta & Yadav, 2023). So, both in-person and remote education institutions face mounting pressure to improve their digital strategies and course design to meet these evolving demands. Even institutions specializing in distance education are not immune to the pressures of an increasingly competitive market, as new entrants, unconstrained by geographical limitations, intensify the rivalry.

To navigate these challenges, organizations increasingly focus on developing dynamic capabilities (DCs) that can enhance efficiency, drive innovation, and improve financial performance (Tian, Lo, & Zhai, 2021). Digital alignment, both strategically and operationally, has been shown to foster business model efficiency (Ciacci, Balzano, & Marzi, 2024). DCs, part of a broader system encompassing resources and strategy, play a crucial role in determining a firm's competitive advantage and facilitating innovation (Teece, 2018; Zhou, Zhou, Feng, & Jiang, 2019). These capabilities can help firms create competitive advantages, and leveraging business information sources can further enhance them (George, Karna, & Sud, 2022; Markovich, Raban, & Efrat, 2022). However, a significant gap remains in understanding the obstacles hindering HEIs' ability to adapt and leverage these capabilities for successful digital transformation.

This study aims to address a critical gap in the existing literature by investigating the barriers to strategic repositioning faced by non-leading Brazilian HEIs in the rapidly evolving digital landscape. While these institutions represent the vast majority of HEIs in Brazil, accounting for 87.7% of the 2,595 institutions, they generally lag behind their leading counterparts in both scientific and financial performance (INEP, 2022). The current situation for these non-leading HEIs is complex: they are confronted with intense competition from established DL providers, yet this evolving landscape may also present opportunities for strategic repositioning. To effectively navigate this complex terrain and capitalize on emerging opportunities, a deeper understanding of several key factors is needed. This includes exploring how to leverage the benefits of DCs when pursuing new opportunities (George et al., 2022; Markovich et al., 2022; Teece, 2018), how to effectively meet the evolving demands of diverse stakeholders (Muñoz Miguel, Simón de Blas, Anguita Rodríguez, & García Sipols, 2023; Park & Kim, 2023; Ratten, 2017), and what obstacles hinder the implementation of necessary changes in content, pedagogical methods (Johnson, 2021; Ratten, 2023a), delivery formats, and assessment strategies (Tiberius, Hoffmeister, & Weyland, 2021). Therefore, this study seeks to answer the following research question: **How should we use dynamic capabilities to reposition non-leading HEIs in the digital landscape?**

By examining the literature and analyzing the experiences of HEIs, this research seeks to provide insights into how institutions can successfully navigate the digital era and ensure their long-term sustainability, providing a framework for overcoming the identified hurdles. The findings revealed barriers that may hinder the use of DCs in repositioning non-leading HEIs: (1) Uncertainty about the future; (2) Lack of strategic tools; (3) Lack of knowledge about costs; (4) Lack of knowledge about 'how' to implement changes; and (5) Lack of definition for meeting stakeholders.

The following section presents a literature review of the challenges experienced by top managers at HEIs. This review revealed the problems and trends in the area. The analysis of information extracted from the literature supported the definition of the research method (see specific section). The remaining sections present the study's findings, discussion, and conclusion.

Literature review

This section begins with a review of DCs, laying the groundwork for a deeper exploration of their role in higher education. The analysis then delves into the complex interplay between institutional adaptation, evolving student needs, market demands, and the changing landscape of educational delivery, highlighting the importance of DCs for navigating this dynamic environment.

Dynamic capabilities

Researchers have operationalized DCs in various ways, leading to different approaches for understanding and measuring these organizational processes. While some studies have focused on broader conceptualizations, examining general features like reconfiguration, learning, and integration, others have adopted a more granular approach, investigating specific DCs such as those related to marketing, management, supply chains, and IT. This diversity in operationalization reflects the complexity of the DCs construct and its multifaceted nature. This evolution is presented below.

The DC offers a framework for understanding strategic change in volatile markets (Teece, Pisano, & Shuen, 1997). It seeks to explain how firms achieve and sustain a competitive advantage by identifying the drivers of long-term success (Wilden, Devinney, & Dowling, 2016). DCs have been defined both as abilities (Teece et al., 1997) and as processes, best practices, or routines (Eisenhardt & Martin, 2000). Teece et al. (1997) initially defined DCs as the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments. Following their work, some authors have considered DCs to be a capability, skill, or capacity (Winter, 2003; Zahra, Sapienza, & Davidsson, 2006). Conversely, Eisenhardt & Martin (2000) link DCs to the firm's processes that utilize resources; specifically, the processes to integrate, reconfigure, gain, and release resources to match and even create market change. In this view, DCs are seen as identifiable strategic routines, such as product development and strategic decision-making, through which firms achieve new resource configurations as markets emerge, collide, split, evolve, and disappear (Eisenhardt & Martin, 2000).

DCs have often been operationalized as a set of distinct activity clusters to explain their workings. Barrales-Molina, Martínez-López, and Gázquez-Abad (2014) suggest these can be broadly categorized into generally accepted features of DC processes, such as reconfiguration, leveraging, learning, integration, coordination (Eisenhardt & Martin, 2000; Teece et al., 1997), environmental sensing and opportunity seizing (Teece et al., 1997), and learning processes like experience accumulation, knowledge articulation, and knowledge codification (Zollo & Winter, 2002). A review of the literature reveals these components as some of the most common conceptualizations of DCs, leading to a quantitative trend of measuring DCs through their underlying processes (Barrales-Molina et al., 2014; Eriksson, 2014).

Some organizational processes and capabilities have been considered more specific, identifiable DCs, such as dynamic marketing capabilities (Peng & Lin, 2017), dynamic managerial capabilities (Li & Liu, 2014), specific supply-chain capabilities (Lee & Rha, 2016), and dynamic IT-enabled capabilities (Drnevich & Kriauciunas, 2011). Eriksson (2014) argues that the former approach suggests DCs may be unique and therefore difficult to imitate (Teece et al., 1997), while the latter implies commonalities among organizations, meaning only the resource and capability configurations DCs create can be unique (Eisenhardt & Martin, 2000).

Some researchers have conducted studies combining universities and DCs. One study found that DCs enable public universities to adapt and thrive in rapidly changing business environments (Heaton, Teece, & Agronin, 2023). Another study indicates that DCs in universities must precede value co-creation capabilities (Beier, Schmidt, & Froehlich, 2023). In German higher education, DCs play a key role in advancing the third mission of institutions (Stolze & Sailer, 2022).

The dropout issue

In the United Kingdom, some universities began to behave similarly to corporate businesses (Banwait & Hancock, 2021). This stance aims to optimize the HEI financial results or mitigate the dropout. Several HEIs face problems related to student dropout (Wardley, Nadeau, & Bélanger, 2024). In Brazil, abandonment occurs in public and private institutions. Official data indicate that this dropout rate is 61% in private higher education and 50% in state higher education (INEP, 2021a, 2021b). In Australian electronic learning (EL), dropout rates may be related to students' lack of engagement. This lack of engagement can be caused by technological hurdles, administrative negligence, piecemeal professional development initiatives, and policy ambiguities (Parida et al., 2023).

Dropout may also be related to the deliveries of HEIs. These institutions suffer from gig workers' rejection of traditional content. One study identified that advanced educational credentials are only of limited use to them. To meet their needs, gig workers gain the necessary qualifications, most notably through self-study, learning-by-doing, and trial-and-error processes (Herrmann, Zaal, Chappin, Schemmann, & Lühmann, 2023). This misalignment seems a severe problem for HEIs since digital competence is positively associated with students' professional adaptability (Zhou, Wang, Liu, Yang, & Jin, 2023). Industry-oriented capstone courses can improve students' employability, especially general ability, behavior, and attitude (Chang, Shih, & Liao, 2022). Well-designed courses could mitigate the dropout. However, some barriers make it challenging to adapt higher education curricula to employability, including weak connections between HEIs and workers, curricula with high theoretical content, and little attention to the soft skills used by the job market (Olo, Correia, & Rego, 2022).

The repositioning alternative

Repositioning an HEI vis-à-vis its competitors can create a new future for the institution. The new position must consider the possible roles that an institution may have. One study classified the HEIs as Leaders and Challengers, Followers and Niches, and Cost Leaders (Kethüda, 2023). Despite their differences, some institutions may compete for the same students. This competition may also involve other education service providers. In South Korea, the offer of remote courses faces problems related to the great competition between private educational services – for example, massive open online courses (MOOCs) or YouTube (Kang & Park, 2022).

In terms of building the thematic differences of an HEI in the digital world, not all HEIs that offer EL need to be seen as competitors. This assumption considers the gains in terms of creativity and complexity that Mexican and Spanish students experienced when participating in a remote program developed by institutions in both countries (Romero-Rodríguez, Ramirez-Montoya, Glasserman-Morales, & Ramos Navas-Parejo, 2023). To compete with traditional and new educational providers, institution managers should assess MOOC investments (e.g., develop their MOOC infrastructures or participate in existing MOOC platforms) and coordinate and integrate existing resources with developing new intrapreneurial capabilities (Guerrero, Heaton, & Urbano, 2021).

Partnerships can reduce costs but also affect HEI's image. Damage to the institutional image can be a problem since a good institutional image can mitigate problems between HEIs and companies or students (Collins, Şimşek, & Takır, 2022; Manzoor, Ho, & Al Mahmud, 2021; McNicholas & Marcella, 2022). On the other hand, good partnerships and a good institutional image can attract students from different regions. HEIs could use a good image to attract students. University website has been used to promote corporate image in different countries (Foroudi et al., 2020; Jain, Mogaji, Sharma, & Babbili, 2022). The dissemination of an image needs to consider the demands of stakeholders: high school students, companies, and donors (Story, 2023). This understanding is essential, as some stakeholders may value an institution presenting 'useful' research results (Tucker, Waye, & Freeman, 2019). Success in all these attempts can mitigate the problem of a lack of resources for EL verified in Pakistan (Qazi, Sharif, & Akhlaq, 2024).

The students' demands

Entrepreneurial universities should consider societal perspectives on learning, education, and teaching about new business practices (Ratten, 2017). Innovative curricula must dialogue with the productive market and use active methodologies that encourage action, regardless of the student's age. Institutions that do not reinvent themselves in this dialogue with society and the market may distance themselves from their students' dreams (Fossatti et al., 2023). However, students at an institution differ from each other. So, a one-size-fits-all approach may benefit some students

and inconvenience others (Salehudin & Alpert, 2022). Computer-supported collaborative learning seems to be a better fit for students who present a higher average age of the group, a higher level of university experience, and a high level of qualification to access the degree required by the university (Muñoz Miguel et al., 2023). The younger the farmers are, the more likely they are to use computer-based technology than older farmers, and the more acres a farmer owns, the more likely they are to use such resources (Ali, Murray, Momin, & Al-Anzi, 2023). Three personality traits affect either perceived learning outcomes or students' attitudes toward discussing their classmates' work and being discussed by their peers: 'proactive emphatic leader', 'speculative leader', and 'passive follower' (Fandos-Herrera, Jiménez-Martínez, Orús, Pérez-Rueda, & Pina, 2023).

Different student profiles present different demands to the HEI. So, institutions should promote and create diverse learning modes that meet the needs of all students (Imran, Fatima, Elbayoumi Salem, & Allil, 2023). Several studies investigated the students demands. Findings indicate that they demand reasonable educational service cost-effectiveness (Alcaide-Pulido, Gutiérrez-Villar, Carbonero-Ruz, & Alves, 2022; Haverila, Haverila, McLaughlin, & Arora, 2021), employment opportunities or qualification for the work (Ashiru, Whitfield, & Warwick, 2022; Ishengoma & Vaaland, 2016; Sin, Tavares, & Amaral, 2016), quality of education (Park & Kim, 2023), competent professors (Burga, Leblanc, & Rezania, 2017; Hernández-López, García-Almeida, Ballesteros-Rodríguez, & De Saá-Pérez, 2016), and partnerships with companies (Le, Bui, Duong, & Chang, 2021). These demands may also vary among students of different courses (Nikitina, Licznerska, Ozoliņa-Ozola, & Lapina, 2023) or among students with differing plans for life, for instance, entrepreneurship (Ibidunni, Mozie, & Ayeni, 2020; Maheshwari, 2021), or employability (Jackson, Riebe, & Macau, 2022; Ng, Chan, Wut, Lo, & Szeto, 2021). One study also identified a broad range of resources crucial for graduates, encompassing human, social, cultural, identity, and psychosocial dimensions and acquired through formal and informal experiences (Tomlinson, 2017).

The companies demands

Misalignments between business demand and HEI delivery can affect the institutional success. These misalignments may be related to location, the size of the employer (Edeigba, 2022), or the skills provided by a HEI. The skills of a candidate demanded by the companies were classified into three levels: beginner, competent, and specialist (Doherty & Stephens, 2021). In Hungary, HRM professionals demand the following competencies: communication, complex problem-solving, and digital skills (Bogdány, Cserháti, & Raffay-Danyi, 2023). A survey of 211 Australian employers identified three key graduate profiles – Manager, People Person, and Business Analyst – reflecting current business needs and a balance of cognitive and affective competencies (Jackson & Chapman, 2012). Employers seek new professionals with a blend of technical and general skills, hands-on experience, or business and programming knowledge to effectively solve problems within their specific company context (Hollister et al., 2017; McMurray, Dutton, McQuaid, & Richard, 2016). Misalignments could be reduced if HEIs co-operate with companies to develop materials. In such cooperation, companies may have different roles: visitors, planners, and cooperators (Borglund, Prenkert, Frostenson, Helin, & Du Rietz, 2019). However, companies may present different views of an educational entity's proposal. Some HR professionals seem to value a candidate's micro-credentials, while other recruiters question their practical transferability (Alasmari, 2024).

Better alignment between companies and HEIs seems to require changes in contents and methods (Johnson, 2021; Ratten, 2023b), delivery formats, and evaluations (Tiberius et al., 2021). The transition to Industry 4.0 also appears to require valuing learning, understanding and leading innovation, experimentation at work, and company connections with education providers (Hearn, Williams, Rodrigues, & Laundon, 2023). However, the literature does not indicate how to break down the invisible walls that separate HEIs from companies or obtain approval from companies for curriculums (Fossatti et al., 2023).

The course redesign

HEI managers are challenged to enhance their course designs (Gupta & Yadav, 2023). A good curriculum should allow students to apply their knowledge to real-world contexts (Johnson, 2021), prepare graduates to deal with unexpected scenarios (Ratten & Jones, 2021), favor the local application of knowledge (Petersen & Kruss, 2021), or to improve business skills (Fitriani & Ajayi, 2022). The development of the requalification courses demands attention to the specific demands of a given activity. For instance, the new knowledge required in the human resources area (van Beurden, Borghouts, van den Groenendaal, & Freese, 2024). A better understanding of the formats to meet demands can indicate how to use Education 4.0 in lifelong education for individuals (Mukul & Büyüközkan, 2023). This demand has yet to be explored by HEIs, so much so that important international organizations have warned educational institutions about the need to requalify people throughout their professional careers (Commission et al., 2019; UNESCO, 2022).

The digital scenario reveals new demands and opportunities. Performance expectation, satisfaction, social influence, facilitating conditions, and instructor competencies positively influence students' continued intentions to use mobile learning (Alzaidi & Shehawy, 2022). So, students may be interested in virtual exchange to improve their understanding of the complexity of development policy in the real world (Sierra, Yassim, & Suárez-Collado, 2022), in online entrepreneurial education to improve their entrepreneurial mindset (Munawar, Yousaf, Ahmed, & Rehman, 2023), or in online CV writing courses for LinkedIn (DeArmond, Rau, Buelow-Fischer, Desai, & Miller, 2023).

However, the current HEIs offers seem to not meet such demands. A study analyzed the ranking of the best MBAs for entrepreneurship in the 2018 Financial Times. The results revealed a slight focus on the topic 'entrepreneurship' in the programs of these courses (Tiberius, Weyland, & Mahto, 2023). Another gap appears to be student assessment (Ng, Ching, & Law, 2023). For example: how could we consider advances in artificial intelligence (Ali et al., 2023) and generative AI (Dwivedi et al., 2023; Lim, Gunasekara, Pallant, Pallant, & Pechenkina, 2023)? Filling this gap could be based on dispersed assessment. This type of assessment encompasses different credit-generating tasks. These tasks are distributed throughout the teaching period to limit the additional burden on students and markers (Thompson, Yoon, & Booth, 2023). So, the HEI offers also need to consider students' perceptions of the workload that courses generate. In the Netherlands, students notice an increased workload in online classes (Banihashem, Noroozi, den Brok, Biemans, & Kerman, 2023).

The digital resources

Digital tools positively influence the learning process in engineering education (Ruiz de la Torre Acha, Rio Belver, Fernandez Aguirrebeña, & Merlo, 2024). Therefore, universities must provide teachers with adequate resources (Ng et al., 2023) consider the personal skills necessary to use these resources (Directorate-General for Education, Youth, Sport and Culture (European Commission), 2019). For instance, the online courses must feature discussion forums, monitor student well-being and progress, and provide opportunities for face-to-face interactions (Efthymiou & Zarifis, 2021). These requirements demand specific resources and capabilities. Critical resources/capabilities for digital learning include technological tools and collaboration with other universities/companies. However, some resources may be expensive. So, course managers should assess MOOC investments – for example, develop their MOOC infrastructures or buy licenses in existing MOOC platforms (Guerrero et al., 2021).

Beyond that, HEI managers must consider that many students attend classes using cell phones (Ironsi & Bensen Bostancı, 2023; Sánchez-Rivas, Ramos Núñez, Ramos Navas-Parejo, & De La Cruz-Campos, 2023; Yesildag & Bostan, 2023). Understanding how to satisfy these students can help to reduce the dropout. One study identified that task-technology fit, perceived ease of use, and perceived enjoyment positively affect mobile usage attitudes and intentions to adopt mobile learning in Malaysia and Saudi Arabia (Abdelwahed & Soomro, 2023). Due to the high diversity among the countries, some authors argue that future research could focus on analyzing the effects of blended learning in

Table 1. What may concern HEI managers in the digital age?

Code	Summary of the literature
Dropout	Increases in dropout rates were verified in public and private institutions. Gig workers reject traditional content and do not obtain qualifications to work in HEIs, thus Increases in dropout rates were verified in public and private institutions. Gig workers reject traditional content and do not obtain qualifications to work in HEIs, thus increasing the dropout rate or underutilization of institutions. Internal barriers contribute to dropout by hindering the HEI adaptation to students' demands.
Repositioning	Repositioning an HEI vis-à-vis its competitors can create a new future for the institution. HEIs were classified as Leaders and Challengers, Followers and Niches, and Cost Leaders. Building the thematic differences demands attention to students' and companies' demands, competitors, investments, and partnerships with other educational service providers. Partnerships can reduce costs but also affect HEI's image (positively or negatively).
Students' demands	Students' demands may vary according to courses, life plans, personality traits, age, university experience, and qualification to access the degree required. Institutions should promote and create diverse learning modes that meet the needs of all students. Demands embrace educational service cost-effectiveness, employment opportunities, quality of education, and partnerships with companies.
Companies demands	Misalignments between companies' demands and HEI delivery can affect institutional success. A better HEI-companies alignment demands attention to contents and methods, delivery formats, and evaluations.
Course design	A good curriculum should allow students to apply their knowledge to real-world contexts. Better content positively influences students' continued intentions to use mobile learning. The current HEI offers, assessments, workload, and use of emerging digital resources do not seem to meet the demands of the digital age.
Digital resources	Digital tools positively influence the learning process. Critical resources/capabilities for digital learning include technological tools and collaboration with other universities/companies. Some resources may be expensive. Games improve engagement and facilitate knowledge transfer.

diverse nations and addressing issues such as access to technology and digital literacy (Imran et al., 2023).

Game is a type of digital tool. Its use improves engagement (Lyons, Fox, & Stephens, 2023; Pitic & Irimiaș, 2023; Thomas & Baral, 2023) and facilitates knowledge transfer (Chen, Yen, Zhang, & Liu, 2023). It fosters higher-order learning in the context of entrepreneurial education (Lyons et al., 2023) or the cultural heritage education (Camuñas-García, Cáceres-Reche, & Cambil-Hernández, 2023). Games can also improve learning on sustainability in economics, business, and management (Sierra & Rodríguez-Conde, 2023). An analysis of the gamified competition showed that four C2C e-commerce competencies are required: e-marketing strategy, live streaming, operational management, and strategic planning (Ho & Chen, 2023). However, we still need to know which requirements allow us to structure the assembly of a game that improves engagement (Schöbel, Janson, & Leimeister, 2023).

Table 1 summarizes the elements that may concern HEI managers.

Method

Research design

This study follows an interpretative and exploratory approach. The interpretive approach allows researchers to understand complex phenomena involving humans in rapidly changing environments (Creswell & Poth, 2016; Yin, 2009). The changes promoted by digital resources in the education scenario constitute an example of rapid changes. Exploratory research allows researchers to understand complex phenomena that cannot be understood through quantitative methods (Malhotra, 2006). It

is about understanding something to enable future quantitative investigations. Therefore, this study employs a qualitative research design with a case study approach. This design allows for an in-depth investigation of a program, event, activity, process, and individual (Creswell & Creswell, 2017). Qualitative research also enables researchers to obtain detailed descriptions and insights into the challenges experienced by managers (Goodman, 2011).

Data collection

Data were collected in a non-probabilistic and purposeful sample (based on predetermined criteria). The Brazilian scenario was selected due to the rapid growth of EL in the country (ABED, 2023; INEP, 2022). The option for HEIs aimed to investigate a group of institutions usually under-researched (despite the vast number of HEIs with such a profile worldwide). To select the HEIs, we initially excluded from the study the 10 best-performing universities in the Times Higher Education rankings (THE Ranking, 2022). The study chose not to include the 10 most sought-after HEIs in the country, 9 of which are public and 1 private. This decision was made because these institutions attract a large number of students due to factors such as their recognized quality of education, high investment of public resources, and prominence in the international scientific scene. This reality differs from that faced by most Brazilian institutions, especially those of intermediate size, which require greater attention and require more urgent analysis. Among the remaining institutions, we invited 20 HEIs (from the eleventh to the thirtieth positions on the Times Higher Education ranking). Six institutions agreed to participate in the study (three public and three private). Public and private HEIs were investigated to increase the information gathered and allow future compassions between findings on each group of institutions. The analysis of the profile of the selected HEIs revealed diversity in size, geographic location, teaching areas, and administrative organization, contributing to the richness and representativeness of the information sources investigated.

The study sought to understand the perspective of top managers on the challenges and opportunities of the digital age. The selection of these leaders, privileged by their strategic position in leading the digital transformation process, was based on the nature of the research question (Yin, 2009) and the need to deepen the analysis of their institutions' past, present, and future. Aiming to identify the factors that impact strategic decisions in this context, we investigated their knowledge, doubts, and constraints. The scarcity of research on the topic justified the choice of in-depth semi-structured interviews as the primary data collection instrument. To ensure the participation of managers, we used different interview formats, such as face-to-face, by telephone connection, and meeting applications (Google Meet, Microsoft Teams). This approach made it possible to collect valuable opinions and insights on digital transformation in Brazilian higher education.

The flexible structure of the semi-structured in-depth interviews allowed interviewees to feel at ease. This feeling contributed to these interviewees convincingly providing relevant information (Ritchie & O'Connor, 2003). The socially constructed nature of the qualitative interview (Kvale, 1994) also allowed the development of social ties between the research team and the interviewees, facilitating the deepening of questions. The interaction between interviewees and interviewers can also be attributed to the interviewees' familiarity with the topic. A copy of the literature review was sent 5 days before the interview to familiarize the interviewees with the study. Participants were also informed about the nature and purpose of the study. This information improved the interviewees' understanding of the study.

The interviews were conducted between May and December 2023 and lasted between 70 and 120 min. At the interviewees' request, none of the interviews were recorded. During the interviews, the researchers wrote down keywords and recorded notes (Yin, 2009). To protect the privacy of informants, we use a code to identify them. Initially, the interviewees were asked generic questions about dropout, institutional repositioning, demands (of students and companies), course redesign, and digital resources. During the conversations, the interviewees were asked about the problems and solutions related to the EL expansion in educational scenarios. Once compiled, the interview results

Table 2. Institutions and managers' profiles and interviews details

Institution	Manager	Experience in the rectory	Duration
Private 1	PR1A	5 years or more	100 min
	PR1B	5 years or more	75 min
Private 2	PR2A	15 years or more	120 min
	PR2B	10 years or more	85 min
Private 3	PR3A	10 years or more	90 min
	PR3B	5 years or more	100 min
Public 1	PU1A	10 years or more	80 min
Public 2	PU2A	5 years or more	100 min
	PU2B	10 years or more	120 min
Public 3	PU3A	5 years or more	70 min

were sent to the informants (for analysis and to reduce interview bias). The managers requested minor changes to the findings, which were implemented by the researchers in the final document.

Table 2 presents the institution's and managers' profiles and interview details. Two managers were interviewed in four of the six institutions investigated, while only one manager was interviewed in the other two HEIs. In the second group of institutions, the HEI top manager defined the managers to be interviewed at each institution. Information that could facilitate their identification was removed from the final manuscript at the interviewees' request.

Data analysis

This research uses a descriptive and exploratory nature as its analysis technique. The analysis and interpretation of the information collected adopted an inductive strategy. This approach constitutes a systematic method for revealing new concepts, identifying the concepts in the first data series, classifying them into themes in the second, and determining the aggregated dimensions in the third (Gioia, Corley, & Hamilton, 2013). Such an approach improves the rigor of analyzing the qualitative information collected (Rashid & Ratten, 2020). The application of the process began with defining keywords extracted from the information collected. Secondly, theoretical concepts were represented, which led to aggregated codes. Repetitions of these analyses allowed the refinement of data analysis. The finding that new codes were no longer being revealed indicated the saturation of these data and determined the end of the analysis process.

Findings

The analysis of senior management perspectives revealed a complex set of challenges hindering HEIs' ability to adapt to the digital era. These challenges fall into three main categories: course delivery, student engagement, and resource allocation. This section delves into each of these areas, highlighting the key concerns expressed by HEI leaders.

Course delivery

Future of HEIs

Managers attribute the growth of EL to the lower total cost incurred by the students (course, travel, food, etc.) and to the time spent going to an institution. Managers of public and private institutions declare a personal preference for face-to-face teaching. For these executives, the future requires attention to experience and coexistence. However, these managers also recognize that EL appears to be a

path of no return. Institutional repositioning could guarantee a new future for HEIs. Such change seems mandatory since the traditional competitive advantage of geographic distance cannot guarantee a promising future for the institutions. As determined, this repositioning must consider the strengths and weaknesses of all HEIs worldwide (since these institutions can reach local students remotely). The managers also want to know: How can the strengths and weaknesses of HEIs be evaluated in the digital era? Some comments are reproduced below.

> We are a private university that only offers in-person courses. To attend classes, a student who lives 30 kilometers away from the institution can spend the equivalent of the monthly tuition for a distance learning course on travel and food. On top of this amount, the student still has to pay the monthly tuition for the in-person course. (PR2A)

> If your family didn't have a lot of money, would you attend a public higher education institution whose total cost is higher than that of distance learning? (PU2B)

Coopetition

According to the interviewed managers, not all HEIs that offer EL need to be seen as competitors. This assumption considers the gains that Mexican and Spanish students experienced when participating in a remote program developed by institutions from both countries (Romero-Rodríguez et al., 2023). However, this is a single sample of cooperation. Participants were then asked about a possible cost-benefit in cooperation among HEIs. Answers revealed that these associations could improve EL and reduce costs incurred in acquiring solutions or developing materials or programs. It was also found that the association between institutions can be an exciting option for HEIs with less financial power. However, interviewees understand that the coopetition (cooperation + competition) resulting from this association may not work between institutions that compete for the same digital market. This possibility is more worrying when considering EL has no geographic limits. Conversations about this problem indicated that board members would like to know when coopetition is viable or how this partnership could be made possible.

> Partnerships with other HEIs can reduce our costs in developing new materials. (PR1A)

> We must know how sharing digital materials can impact an institution's competitive advantage. (PR3A)

Students engagement

Dropout

Board members highlighted the lack of information about how HEIs have successfully addressed the school dropout problem. As not all HEIs are equal, these future studies need to cover HEIs classified as Leaders and Challengers, Followers and Niches, and Cost Leaders (Kethüda, 2023). The existence of a list of good practices could guide decision-making. The EL demands self-discipline from students (a discipline that not all students have). The managers interviewed would like to understand better why students have not finished their remote courses before developing actions to meet the new demands.

> We will never have good remote teaching without understanding why students drop out. (PR1A)

Gig workers

HEI managers highlighted that this group of workers appears to be expanding. Meeting the needs of gig workers could reduce dropouts and even attract new students to HEIs. When asked why HEIs still do not meet these demands, managers revealed some issues that prevent the definition of the most

appropriate actions. For example: Considering how gig workers are currently training, should an HEI invest in developing courses for these workers?

> We have doubts as to whether HEIs should explore courses for Gig Workers. (PU2A)

> We could have a better future by meeting the demands of Gig Workers. (PR3A)

Companies

The managers interviewed understand that not all knowledge required by the market needs to be prioritized by HEIs in the digital scenario. Due to the global competition provided by digitization, HEIs could provide knowledge that serves the interests of some organizations. In their opinion, other knowledge can be provided by other HEIs. Success in selecting the knowledge to be provided can reveal a new future for HEIs: being excellent globally or in the country at something, but not everything! Further conversations about institutional positioning revealed two questions: How can HEIs be (re)positioned in the digital era?

> In the digital world, should our institution be very good at everything or excellent in some areas? (P3B)

> How can we position our institution in the global and digital scenario? (PR1A)

Resource allocation

Costs

Updating digital resources without increasing costs significantly is challenging. The interviewed managers do not know if the massive use of EL reduces costs or if its payback can occur quickly. Beyond that, investment errors can consume financial resources in solutions that will not meet students' expectations or serve as a competitive advantage against competitors. To avoid such problems, interviewees would like to understand better how to structure a cost-effective EL-based course that allows an HEI to face the competition of different sizes and images in the market (including new entrants and more significant or renowned institutions). Another factor that must be considered is the number of students needed to cover the costs incurred. In paid HEI that serve students with low purchasing power, offering nonexpensive courses to many students is essential (to meet the institution's financial targets).

> Errors in decisions related to distance learning can cause severe financial issues! (PU1A)

> We don't know how to structure a distance learning course that is financially viable. (PR1B)

Investments

Searching for more significant cost reductions may lead to a HEI to contract ready-made materials. The interviewees declared they would like to know the problems and benefits verified in institutions that have acquired ready materials. They also suggested possible pros and contras related to such an option. On the one hand, the digital materials purchased may have higher quality than those developed by a single teacher. On the other hand, these materials may not suit local demands. The managers also fear a commoditization and homogenization of HEIs (due to the use of similar materials by many institutions). As ascertained, it is a difficult choice: incurring costs with developing your materials or using market materials to reduce costs.

> Is it worth buying ready-made materials for distance learning? (PR2A)

> How can students evaluate an institution's course that uses the same digital materials as another institution? (PU3A)

Table 3. Doubts that HEI managers expect research managers to answer

Doubt group	Code	What HEI managers would like to know?
Course delivery	Future	How could the HEIs's strengths and weaknesses be evaluated and managed in the digital era?
	Coopetition	When coopetition is viable for traditional HEIs? How to establish a coopetition agreement?
Students demands	Dropout	Why are students not finishing their remote courses?
	Gig workers	Should an HEI invest in developing courses for gig workers?
	Companies	How can HEIs be (re)positioned in the digital era?
Resource allocation	Costs	What should be considered when structuring a cost-effective EL-based course? How many students are needed to cover the costs incurred in paid HEI that serve students with low purchasing power?
	Investments	Should an HEI develop its materials or use market materials to reduce costs?

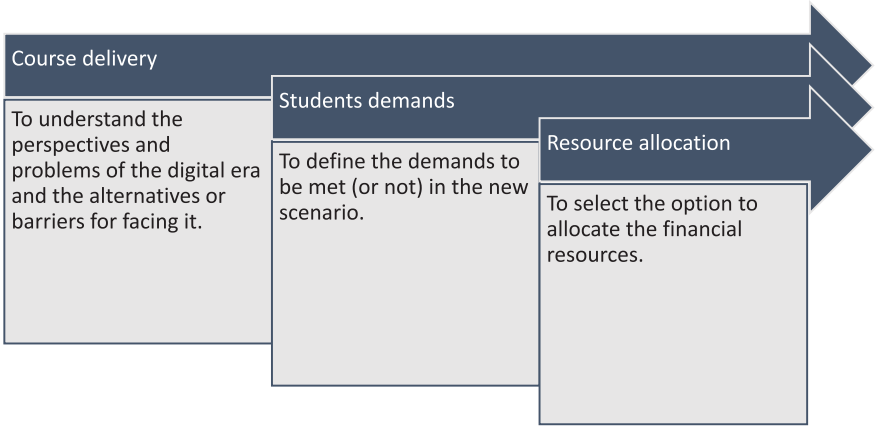

Figure 1. Steps to be considered when promoting changes in HEIs.

Table 3 summarizes the doubts indicated by the top managers.

Discussion of the findings with the interviewees revealed a sequence of steps to be considered when promoting changes in HEIs. This sequence is presented in Figure 1.

Discussion

This study provides an understanding of the multifaceted challenges that negatively affect HEIs' ability to adapt to the digital era through DCs. By examining these challenges through the lens of previous studies, this research offers insights into the knowledge gaps that can drive successful digital transformation in higher education.

Findings highlight the importance of a methodology to assess HEIs' strengths and weaknesses in the digital landscape and to guide their strategic decisions. Such a methodology could reduce the impact of managers' uncertainty about HEIs' future in the digital scenario, allowing them to fully leverage the benefits of DCs, such as exploring new opportunities (George et al., 2022; Teece, 2018; Zhou et al., 2019), maintaining competitiveness, and improving financial performance (Tian et al., 2021).

Uncertainty about the costs and implications of digitalization in the HEIs business is another factor that impedes investment in the transition to digital education. This study reveals that this uncertainty

directly affects investments in technologies such as digital games, limiting the exploitation of their benefits, such as increased student engagement (Lyons et al., 2023; Pitic & Irimiaș, 2023; Thomas & Baral, 2023) and improved educational service quality (Chen et al., 2023; Lyons et al., 2023; Sierra & Rodríguez-Conde, 2023).

This study also revealed uncertainties about 'how' to meet stakeholder demands. The literature presents the student's needs in terms of teaching and market relations (e.g., Muñoz Miguel et al., 2023; Park & Kim, 2023; Ratten, 2017) and other demands (e.g., Ashiru et al., 2022; Jackson et al., 2022; Ng et al., 2021). Regarding companies, there are studies on their evaluations of the quality of service provided by HEIs (Bogdány et al., 2023; Doherty & Stephens, 2021; Hollister et al., 2017). Although there is a good understanding of 'what' needs to be done to meet these demands, the question remains about 'how' to do it. This study highlights this gap, which prevents implementing changes in content, methods (Johnson, 2021; Ratten, 2023b), delivery formats, and assessments (Tiberius et al., 2021).

This study also indicates that the repositioning of HEIs through DCs seems to be hampered by doubts about the convenience of meeting the demands of students, 'gig workers', or companies. The combination of these doubts seems to impede better decision-making by institutions senior management, preventing HEIs from improving their relationships with companies (Collins et al., 2022; Manzoor et al., 2021; McNicholas & Marcella, 2022) or fully meeting the demands of stakeholders: students, companies, and donors (Story, 2023).

Conclusion

Contributions

This study deepens our understanding of the challenges that prevent HEIs from using DCs to reposition themselves in the digital market. The main barriers identified are:

1. **Uncertainty about the future:** The lack of clarity about the future of HEIs in the digital scenario generates hesitation in decision-making through DCs.
2. **Lack of strategic tools:** The absence of methodologies to assess strengths and weaknesses and guide strategic decisions makes it difficult to take advantage of DCs' potential to innovate, compete, and achieve excellence.
3. **Lack of knowledge about costs:** Uncertainty about the impact on costs that digitalization can generate inhibits investments in technologies such as digital games, limiting the exploitation of benefits such as increased student engagement and improved teaching quality.
4. **Lack of knowledge about 'how' to implement changes:** Although the literature guides the needs of students and companies, there is still a gap in 'how' to develop concrete actions that impact content, methods, and delivery formats.
5. **Lack of definition about meeting stakeholders:** The hesitation in defining strategies to meet the needs of students and companies compromises decision-making, relationships with companies, and the ability to meet stakeholders.

Overcoming these barriers is crucial for HEIs to effectively implement DCs, transforming the challenges of the digital age into opportunities for growth, innovation, and relevance in the educational market. Thus, the main contributions of this study are:

- **Identification of barriers:** It mapped the main challenges that impede the strategic use of DCs.
- **Proposition of knowledge gaps:** It highlighted the need to develop tools and knowledge to guide decision-making and the implementation of changes.
- **Indication of practical implications:** It provides insights for HEIs to overcome barriers and use DCs to reposition themselves in the digital market.

This study contributes to advancing the debate on digital transformation in higher education by addressing the main barriers and knowledge gaps. It supports HEIs in becoming more agile, innovative, and competitive in the digital age.

Limitations

Although this study deepens our understanding of the challenges that prevent HEIs from using DCs to reposition themselves in the digital market, it presents some limitations that should be considered in future research.

- **Qualitative approach:** Although the research is rich in details and nuances, its qualitative nature may limit generalization. Future quantitative studies can complement the analysis and expand the sample to different contexts and realities.
- **Focus on senior management of HEIs:** The research focused on the perspective of key managers, failing to explore the views of other stakeholders such as professors, students, and companies. Future studies can broaden the scope of the investigation, including different actors and their perceptions of DCs and digital transformation.
- **Specific context:** The study was based on a particular context, which may limit the generalization of the results to other realities. Future research can explore the influence of factors such as the size of the HEI, the geographic location, and the management model on the use of DCs.
- **Lack of analytical tools:** The research identified the need for tools to assess strengths and weaknesses and guide strategic decisions but did not develop them. Future studies can focus on creating and validating such tools, helping HEIs to implement DCs.

Future studies

The analysis of these limitations indicates the need for future studies with the aim of:

- **Developing quantitative studies:** Investigating the relationship between DCs and HEI performance using statistical models and comparative analyses.
- **Broadening the research perspective:** Including other stakeholders, such as professors, students, and companies, to understand their perceptions about DCs and digital transformation.
- **Analyzing different contexts:** Exploring how contextual factors, such as HEI size, geographic location, and management model, influence the use of DCs.
- **Creating and validating analytical tools:** Developing tools to assess strengths and weaknesses, guide strategic decisions, and measure the impact of DCs on HEI performance.
- **Investigate the role of leadership:** Analyze how leadership in HEIs influences the implementation of DCs and digital transformation.
- **Explore coopetition strategies:** Investigate models of coopetition between HEIs for developing digital courses and programs.
- **Analyze the impact of the student experience:** Evaluate how DCs can personalize learning, increase engagement, and improve the student experience.

By addressing these suggestions, future research can deepen the understanding of the role of DCs in the digital transformation of HEIs, helping them to overcome the challenges and seize the opportunities of the digital era.

References

Abdelwahed, N. A. A., & Soomro, B. A. (2023). Attitudes and intentions towards the adoption of mobile learning during COVID-19: Building an exciting career through vocational education. *Education + Training*, *65*(2), 210–231. https://doi.org/10.1108/ET-02-2022-0048

ABED. (2023). *Especialistas comentam expansão da educação a distância e o futuro da modalidade no país*. Retrieved December 12, 2024, from https://www.abed.org.br/site/pt/midiateca/textos_ead/2176/2023/01/https//brasilbettshowcom/ahead-by-bett-bras

Alasmari, T. (2024). Reshaping vocational training: A study on the recognition of micro-credentials in job markets. *Education and Training*. https://doi.org/10.1108/ET-07-2023-0282

Alcaide-Pulido, P., Gutiérrez-Villar, B., Carbonero-Ruz, M., & Alves, H. (2022). Four key variables for determining the image of higher education institutions: A cross-national analysis based on undergraduate students. *Journal of Marketing for Higher Education*, 1–19. https://doi.org/10.1080/08841241.2022.2056671

Ali, O., Murray, P., Momin, M., & Al-Anzi, F. S. (2023). The knowledge and innovation challenges of ChatGPT: A scoping review. *Technology in Society*, 75. https://doi.org/10.1016/j.techsoc.2023.102402

Alzaidi, M. S., & Shehawy, Y. M. (2022). Cross-national differences in mobile learning adoption during COVID-19. *Education and Training*, *64*(3), 305–328. https://doi.org/10.1108/ET-05-2021-0179

Ânima - RI. (2023). *Ânima - Relações com Investidores*. Retrieved December 12, 2024, from https://ri.animaeducacao.com.br/#

Ashiru, F., Whitfield, I., & Warwick, P. (2022). Business school capital and study choices in undergraduate education: A student-centred approach. *The International Journal of Management Education*, *20*(2), 100633. https://doi.org/10.1016/j.ijme.2022.100633

B3. (2023). Retrieved December 12, 2024, from *A Bolsa do Brasil | B3*. https://b3.com.br/pt_br/para-voce

Banihashem, S. K., Noroozi, O., den Brok, P., Biemans, H. J. A., & Kerman, N. T. (2023). Modeling teachers' and students' attitudes, emotions, and perceptions in blended education: Towards post-pandemic education. *The International Journal of Management Education*, *21*(2), 100803. https://doi.org/10.1016/j.ijme.2023.100803

Banwait, K. S., & Hancock, C. (2021). Post Browne Review: A reflective analysis of marketisation dilemmas of senior managers in English universities. *Journal of Marketing for Higher Education*, 1–18. https://doi.org/10.1080/08841241.2021.2006853

Barrales-Molina, V., Martínez-López, F. J., & Gázquez-Abad, J. C. (2014). Dynamic marketing capabilities: Toward an integrative framework. *International Journal of Management Reviews*, *16*(4), 397–416. https://doi.org/10.1111/IJMR.12026

BBC. (2015, July 9). *All you need to know about Uber*. Retrieved December 12, 2024, from https://www.bbc.com/news/world-us-canada-33281422

Beier, C. G., Schmidt, S., & Froehlich, C. (2023). Dynamic capabilities and value co-creation in higher education. *Journal of Marketing for Higher Education*. https://doi.org/10.1080/08841241.2023.2233940

Bogdány, E., Cserháti, G., & Raffay-Danyi, Á. (2023). A proposed methodology for mapping and ranking competencies that HRM graduates need. *The International Journal of Management Education*, *21*(2), 100789. https://doi.org/10.1016/j.ijme.2023.100789

Borglund, T., Prenkert, F., Frostenson, M., Helin, S., & Du Rietz, S. (2019). External facilitators as 'Legitimizers' in designing a master's program in sustainable business at a Swedish business school – A typology of industry collaborator roles in RME. *The International Journal of Management Education*, *17*(3), 100315. https://doi.org/10.1016/j.ijme.2019.100315

Burga, R., Leblanc, J., & Rezania, D. (2017). Analysing the effects of teaching approach on engagement, satisfaction and future time perspective among students in a course on CSR. *The International Journal of Management Education*, *15*(2), 306–317. https://doi.org/10.1016/J.IJME.2017.02.003

Camuñas-García, D., Cáceres-Reche, M. P., & Cambil-Hernández, M. D. L. E. (2023). Mobile game-based learning in cultural heritage education: A bibliometric analysis. *Education + Training*, *65*(2), 324–339. https://doi.org/10.1108/ET-06-2022-0247

Chang, J.-C., Shih, H.-F., & Liao, F.-R. (2022). The impact of industry-oriented capstone courses on the employability of EECS students in technological universities. *Education and Training*, *64*(2), 290–303. https://doi.org/10.1108/ET-04-2021-0129

Chen, Y., Yen, P.-Y., Zhang, Y., & Liu, H. (2023). Conducting business disciplinary research by playing educational games: A case of the forecast sharing game in supply chain management. *The International Journal of Management Education*, *21*(2), 100773. https://doi.org/10.1016/j.ijme.2023.100773

Ciacci, A., Balzano, M., & Marzi, G. (2024). Optimising business models through digital alignment and strategic flexibility: Evidence from the manufacturing industry. *Journal of Management & Organization*, 1–21. https://doi.org/10.1017/JMO.2024.1

Cogna, R. I. (2023). *Cogna*. Retrieved December 12, 2024, from https://ri.cogna.com.br/

Collins, A., Şimşek, H., & Takır, A. (2022). Choosing a Higher Education destination: Marketing of where, why and how? *Journal of Marketing for Higher Education*, 1–22. https://doi.org/10.1080/08841241.2022.2048431

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage Publications.

Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage Publications.

Cruzeiro do Sul - RI. (2023). *Cruzeiro do Sul Educacional*. Retrieved December 12, 2024, from https://ri.cruzeirodosuleducacional.com.br/

DeArmond, S., Rau, B. L., Buelow-Fischer, J., Desai, A., & Miller, A. J. (2023). Teaching professional skills during the pandemic: Does delivery mode matter? *The International Journal of Management Education*, *21*(2), 100770. https://doi.org/10.1016/j.ijme.2023.100770

Dent Goodman, V. (2011). A brief overview of qualitative research. *Qualitative Research and the Modern Library*, 7–31.
Directorate-General for Education, Youth, Sport and Culture (European Commission). (2019). *Key competences for lifelong learning*. Publications Office. https://doi.org/10.2766/569540
Doherty, O., & Stephens, S. (2021). The skill needs of the manufacturing industry: Can higher education keep up? *Education + Training*, *63*(4), 632–646. https://doi.org/10.1108/ET-05-2020-0134
Drnevich, P. L., & Kriauciunas, A. P. (2011). Clarifying the conditions and limits of the contributions of ordinary and dynamic capabilities to relative firm performance. *Strategic Management Journal*, *32*(3), 254–279. https://doi.org/10.1002/SMJ.882
Dwivedi, Y. K., Kshetri, N., Hughes, L., Slade, E. L., Jeyaraj, A., Kar, A. K., … Wright, R. (2023). "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, *71*. https://doi.org/10.1016/j.ijinfomgt.2023.102642
Edeigba, J. (2022). Employers' expectations of accounting skills from vocational education providers: The expectation gap between employers and ITPs. *The International Journal of Management Education*, *20*(3), 100674. https://doi.org/10.1016/j.ijme.2022.100674
Efthymiou, L., & Zarifis, A. (2021). Modeling students' voice for enhanced quality in online management education. *The International Journal of Management Education*, *19*(2), 100464. https://doi.org/10.1016/j.ijme.2021.100464
Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, *21*, 1105–1121. https://doi.org/10.1002/1097-0266(200010/11)21:10/11
Eriksson, T. (2014). Processes, antecedents and outcomes of dynamic capabilities. *Scandinavian Journal of Management*, *30*(1), 65–82. https://doi.org/10.1016/J.SCAMAN.2013.05.001
Fandos-Herrera, C., Jiménez-Martínez, J., Orús, C., Pérez-Rueda, A., & Pina, J. M. (2023). The influence of personality on learning outcomes and attitudes: The case of discussants in the classroom. *The International Journal of Management Education*, *21*(1), 100754. https://doi.org/10.1016/j.ijme.2022.100754
Fitriani, H., & Ajayi, S. (2022). Preparing Indonesian civil engineering graduates for the world of work. *Industry and Higher Education*, *36*(4), 471–487. https://doi.org/10.1177/09504222211046187
Foroudi, P., Nazarian, A., Ziyadin, S., Kitchen, P., Hafeez, K., Priporas, C., & Pantano, E. (2020). Co-creating brand image and reputation through stakeholder's social network. *Journal of Business Research*, *114*, 42–59. https://doi.org/10.1016/j.jbusres.2020.03.035
Fossatti, P., Chiappetta Jabbour, C. J., Ratten, V., Pereira, G. M., Borchardt, M., Milan, G. S., & Eberle, L. (2023). What do (should) we know to leverage students' employability and entrepreneurship? A systematic guide to researchers and managers. *The International Journal of Management Education*, *21*(2), 100788. https://doi.org/10.1016/j.ijme.2023.100788
George, N., Karna, A., & Sud, M. (2022). Entrepreneurship through the lens of dynamic managerial capabilities: A review of the literature. *Journal of Management and Organization*. https://doi.org/10.1017/jmo.2022.25
Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research. *Organizational Research Methods*, *16*(1), 15–31. https://doi.org/10.1177/1094428112452151
Goodman, V. D. (2011). 1 - A brief overview of qualitative research. In *Chandos Information Professional Series, Qualitative Research and the Modern Library*, (p. 7–31). Chandos Publishing, https://doi.org/10.1016/B978-1-84334-644-9.50001-9
Guerrero, M., Heaton, S., & Urbano, D. (2021). Building universities' intrapreneurial capabilities in the digital era: The role and impacts of Massive Open Online Courses (MOOCs). *Technovation*, *99*, 102139. https://doi.org/10.1016/j.technovation.2020.102139
Gupta, O. J., & Yadav, S. (2023). Determinants in advancement of teaching and learning in higher education: In special reference to management education. *The International Journal of Management Education*, *21*(2), 100823. https://doi.org/10.1016/j.ijme.2023.100823
Haverila, M., Haverila, K., McLaughlin, C., & Arora, M. (2021). Towards a comprehensive student satisfaction model. *The International Journal of Management Education*, *19*(3), 100558. https://doi.org/10.1016/j.ijme.2021.100558
Hearn, G., Williams, P., Rodrigues, J. H. P., & Laundon, M. (2023). Education and training for Industry 4.0: A case study of a manufacturing ecosystem. *Education and Training*, *65*(8–9), 1070–1084. https://doi.org/10.1108/ET-10-2022-0407
Heaton, S., Teece, D., & Agronin, E. (2023). Dynamic capabilities and governance: An empirical investigation of financial performance of the higher education sector. *Strategic Management Journal*, *44*(2), 520–548. https://doi.org/10.1002/SMJ.3444
Hernández-López, L., García-Almeida, D. J., Ballesteros-Rodríguez, J. L., & De Saá-Pérez, P. (2016). Students' perceptions of the lecturer's role in management education: Knowledge acquisition and competence development. *The International Journal of Management Education*, *14*(3), 411–421. https://doi.org/10.1016/J.IJME.2016.10.001
Herrmann, A. M., Zaal, P. M., Chappin, M. M. H., Schemmann, B., & Lühmann, A. (2023). "We don't need no (higher) education" - How the gig economy challenges the education-income paradigm. *Technological Forecasting and Social Change*, *186*, 122136. https://doi.org/10.1016/j.techfore.2022.122136
Ho, S. C., & Chen, J. L. (2023). Developing the e-commerce competency for entrepreneurship education from a gamified competition. *The International Journal of Management Education*, *21*(1), 100737. https://doi.org/10.1016/J.IJME.2022.100737

Hollister, J. M., Spears, L. I., Mardis, M. A., Lee, J., McClure, C. R., & Liebman, E. (2017). Employers' perspectives on new information technology technicians' employability in North Florida. *Education and Training*, *59*(9), 929–945. https://doi.org/10.1108/ET-02-2017-0019/FULL/XML

Ibidunni, A. S., Mozie, D., & Ayeni, A. W. A. A. (2020). Entrepreneurial characteristics amongst university students: Insights for understanding entrepreneurial intentions amongst youths in a developing economy. *Education + Training*, *63*(1), 71–84. https://doi.org/10.1108/ET-09-2019-0204

Imran, R., Fatima, A., Elbayoumi Salem, I., & Allil, K. (2023). Teaching and learning delivery modes in higher education: Looking back to move forward post-COVID-19 era. *International Journal of Management Education*, *21*(2). https://doi.org/10.1016/j.ijme.2023.100805

INEP. (2021a). *Censo Escolar da Educação Superior Brasileira 2021*. INSTITUTO NACIONAL DE ESTUDOS E PESQUISAS EDUCACIONAIS ANÍSIO TEIXEIRA. Retrieved April 19, 2024, from https://download.inep.gov.br/educacao_superior/censo_superior/documentos/2021/apresentacao_censo_da_educacao_superior_2021.pdf

INEP. (2021b). *Resumo Técnico do Censo da Educação Superior 2021*. INSTITUTO NACIONAL DE ESTUDOS E PESQUISAS EDUCACIONAIS ANÍSIO TEIXEIRA (INEP). Retrieved April 12, 2024, from https://download.inep.gov.br/publicacoes/institucionais/estatisticas_e_indicadores/resumo_tecnico_censo_da_educacao_superior_2021.pdf

INEP. (2022, November 4). *Ensino a distância cresce 474% em uma década*. Retrieved April 21, 2024, from https://www.gov.br/inep/pt-br/assuntos/noticias/censo-da-educacao-superior/ensino-a-distancia-cresce-474-em-uma-decada

INEP. (2024). *CENSO DA EDUCAÇÃO SUPERIOR 2023*.

Ironsi, C. S., & Bensen Bostancı, H. (2023). Utilizing mobile-learning and CAP(E) lesson framework in improving the productive skills of learners in a hybrid environment. *Education + Training*, *65*(2), 232–252. https://doi.org/10.1108/ET-12-2021-0471

Ishengoma, E., & Vaaland, T. I. (2016). Can university-industry linkages stimulate student employability? *Education and Training*, *58*(1), 18–44. https://doi.org/10.1108/ET-11-2014-0137/FULL/XML

Jackson, D., & Chapman, E. (2012). Empirically derived competency profiles for Australian business graduates and their implications for industry and business schools. *The International Journal of Management Education*, *10*(2), 112–128. https://doi.org/10.1016/J.IJME.2012.04.002

Jackson, D., Riebe, L., & Macau, F. (2022). Determining factors in graduate recruitment and preparing students for success. *Education + Training*, *64*(5), 681–699. https://doi.org/10.1108/ET-11-2020-0348

Jain, V., Mogaji, E., Sharma, H., & Babbili, A. S. (2022). A multi-stakeholder perspective of relationship marketing in higher education institutions. *Journal of Marketing for Higher Education*, 1–19. https://doi.org/10.1080/08841241.2022.2034201

Johnson, M. (2021). Teaching excellence in the context of business and management education: Perspectives from Australian, British and Canadian universities. *The International Journal of Management Education*, *19*(3), 100508. https://doi.org/10.1016/j.ijme.2021.100508

Kang, D., & Park, M. J. (2022). Interaction and online courses for satisfactory university learning during the COVID-19 pandemic. *The International Journal of Management Education*, *20*(3), 100678. https://doi.org/10.1016/j.ijme.2022.100678

Kethüda, Ö. (2023). Positioning strategies and rankings in the HE: Congruence and contradictions. *Journal of Marketing for Higher Education*, *33*(1), 97–123. https://doi.org/10.1080/08841241.2021.1892899

Kvale, S. (1994). *Interviews: An introduction to qualitive research interviewing*. London: Sage Publications.

Le, L. H., Bui, S. C., Duong, G. H., & Chang, Y.-C. (2021). Understanding the relationships between B2C and C2C value co-creation in the universities: The mediating role of brand awareness. *Journal of Marketing for Higher Education*, 1–21. https://doi.org/10.1080/08841241.2021.2006852

Lee, S. M., & Rha, J. S. (2016). Ambidextrous supply chain as a dynamic capability: Building a resilient supply chain. *Management Decision*, *54*(1), 2–23. https://doi.org/10.1108/MD-12-2014-0674/FULL/XML

Li, D. Y., & Liu, J. (2014). Dynamic capabilities, environmental dynamism, and competitive advantage: Evidence from China. *Journal of Business Research*, *67*(1), 2793–2799. https://doi.org/10.1016/J.JBUSRES.2012.08.007

Lim, W. M., Gunasekara, A., Pallant, J. L., Pallant, J. I., & Pechenkina, E. (2023). Generative AI and the future of education: Ragnarök or reformation? A paradoxical perspective from management educators. *The International Journal of Management Education*, *21*(2), 100790. https://doi.org/10.1016/j.ijme.2023.100790

Lyons, R. M., Fox, G., & Stephens, S. (2023). Gamification to enhance engagement and higher order learning in entrepreneurial education. *Education + Training*, *65*(3), 416–432. https://doi.org/10.1108/ET-05-2022-0204

Maheshwari, G. (2021). Factors influencing entrepreneurial intentions the most for university students in Vietnam: Educational support, personality traits or TPB components? *Education + Training*, *63*(7/8), 1138–1153. https://doi.org/10.1108/ET-02-2021-0074

Malhotra, N. K. (2006). Questionnaire design and scale development. In R. Grover, and M. Vriens (Eds.), *The handbook of marketing research: Uses, misuses, and future advances* (pp. 83–94). London: Sage Publications.

Manzoor, S. R., Ho, J. S. Y., & Al Mahmud, A. (2021). Revisiting the 'university image model' for higher education institutions' sustainability. *Journal of Marketing for Higher Education*, *31*(2), 220–239. https://doi.org/10.1080/08841241.2020.1781736

Markovich, A., Raban, D. R., & Efrat, K. (2022). Tailoring competitive information sources to the sequence of dynamic capabilities. *Journal of Management & Organization*, *28*(3), 480–501. https://doi.org/10.1017/JMO.2022.35

McMurray, S., Dutton, M., McQuaid, R., & Richard, A. (2016). Employer demands from business graduates. *Education and Training*, *58*(1), 112–132. https://doi.org/10.1108/ET-02-2014-0017/FULL/XML

McNicholas, C., & Marcella, R. (2022). An interactive decision-making model of international postgraduate student course choice. *Journal of Marketing for Higher Education*, 1–26. https://doi.org/10.1080/08841241.2022.2076276

Mukul, E., & Büyüközkan, G. (2023). Digital transformation in education: A systematic review of education 4.0. *Technological Forecasting and Social Change*, *194*, 122664. https://doi.org/10.1016/J.TECHFORE.2023.122664

Munawar, S., Yousaf, H. Q., Ahmed, M., & Rehman, S. (2023). The influence of online entrepreneurial education on entrepreneurial success: An empirical study in Pakistan. *The International Journal of Management Education*, *21*(1), 100752. https://doi.org/10.1016/j.ijme.2022.100752

Muñoz Miguel, J. P., Simón de Blas, C., Anguita Rodríguez, F., & García Sipols, A. E. (2023). Collaborative learning in management subjects to university students: A multi-level research to identify group profile, engagement and academic performance. *The International Journal of Management Education*, *21*(1), 100762. https://doi.org/10.1016/j.ijme.2022.100762

Ng, D. T. K., Ching, A. C. H., & Law, S. W. (2023). Online learning in management education amid the pandemic: A bibliometric and content analysis. *International Journal of Management Education*, *21*(2). https://doi.org/10.1016/j.ijme.2023.100796

Ng, P. M. L., Chan, J. K. Y., Wut, T. M., Lo, M. F., & Szeto, I. (2021). What makes better career opportunities for young graduates? Examining acquired employability skills in higher education institutions. *Education + Training*, *63*(6), 852–871. https://doi.org/10.1108/ET-08-2020-0231

Nikitina, T., Licznerska, M., Ozoliņa-Ozola, I., & Lapina, I. (2023). Individual entrepreneurial orientation: Comparison of business and STEM students. *Education + Training*, *65*(4), 565–586. https://doi.org/10.1108/ET-07-2021-0256

Olo, D., Correia, L., & Rego, C. (2022). How to develop higher education curricula towards employability? A multi-stakeholder approach. *Education and Training*, *64*(1), 89–106. https://doi.org/10.1108/ET-10-2020-0329

Omniraza. (2023). *Digitalization's Transformative Influence on Traditional Business Models: A Positive Perspective*. Virtual Realities. Retrieved June 15, 2024, from https://www.omniraza.com/how-digitalization-affect-traditional-business

Parida, S., Dhakal, S. P., Dayaram, K., Mohammadi, H., Ayentimi, D. T., Amankwaa, A., & D'Cruz, D. (2023). Rhetoric and realities in Australian universities of student engagement in online learning: Implications for a post-pandemic era. *The International Journal of Management Education*, *21*(2), 100795. https://doi.org/10.1016/j.ijme.2023.100795

Park, S., & Kim, K. (2023). Factors that enhance the perceived quality and student satisfaction of specialized postgraduate programs: The role of identity. *The TQM Journal*, *35*(4), 1007–1029. https://doi.org/10.1108/TQM-06-2021-0189

Peng, Y. P., & Lin, K. H. (2017). The effect of global dynamic capabilities on internationalizing SMEs performance: Organizational culture factors as antecedents. *Baltic Journal of Management*, *12*(3), 307–328. https://doi.org/10.1108/BJM-09-2016-0199/FULL/XML

Petersen, I., & Kruss, G. (2021). Universities as change agents in resource-poor local settings: An empirically grounded typology of engagement models. *Technological Forecasting and Social Change*, *167*, 120693. https://doi.org/10.1016/j.techfore.2021.120693

Pitic, D., & Irimiaș, T. (2023). Enhancing students' engagement through a business simulation game: A qualitative study within a higher education management course. *International Journal of Management Education*, *21*(3). https://doi.org/10.1016/j.ijme.2023.100839

Qazi, M. A., Sharif, M. A., & Akhlaq, A. (2024). Barriers and facilitators to adoption of e-learning in higher education institutions of Pakistan during COVID-19: Perspectives from an emerging economy. *Journal of Science and Technology Policy Management*, *15*(1), 31–52. https://doi.org/10.1108/JSTPM-01-2022-0002

THE Ranking (2022). *World University Rankings*. Times Higher Education. Retrieved December 10, 2024, from https://www.timeshighereducation.com/world-university-rankings/2023/world-ranking

Rashid, S., & Ratten, V. (2020). A dynamic capabilities approach for the survival of Pakistani family-owned business in the digital world. *Journal of Family Business Management*, *10*(4), 373–387. https://doi.org/10.1108/JFBM-12-2019-0082

Ratten, V. (2017). Entrepreneurial universities: The role of communities, people and places. *Journal of Enterprising Communities*, *11*(3), 310–315. https://doi.org/10.1108/JEC-03-2017-0021/FULL/XML

Ratten, V. (2023a). Digital platforms and transformational entrepreneurship during the COVID-19 crisis. *International Journal of Information Management*, *72*. https://doi.org/10.1016/j.ijinfomgt.2022.102534

Ratten, V. (2023b). The post COVID-19 pandemic era: Changes in teaching and learning methods for management educators. *The International Journal of Management Education*, *21*(2), 100777. https://doi.org/10.1016/j.ijme.2023.100777

Ratten, V., & Jones, P. (2021). Covid-19 and entrepreneurship education: Implications for advancing research and practice. *The International Journal of Management Education*, *19*(1), 100432. https://doi.org/10.1016/j.ijme.2020.100432

Ritchie, J., Spencer, L., & O'Connor, W.. (2003). Carrying out Qualitative Analysis. In J. Ritchie & J. Lewis (Eds.), *Qualitative Research Practice: A Guide for Social Science Students and Researchers* (pp. 219–262). London: Sage Publications.

Romero-Rodríguez, J.-M., Ramirez-Montoya, M. S., Glasserman-Morales, L. D., & Ramos Navas-Parejo, M. (2023). Collaborative online international learning between Spain and Mexico: A microlearning experience to enhance creativity in complexity. *Education + Training*, *65*(2), 340–354. https://doi.org/10.1108/ET-07-2022-0259

Ruiz de la Torre Acha, A., Rio Belver, R. M., Fernandez Aguirrebeña, J., & Merlo, C. (2024). Application of simulation and virtual reality to production learning. *Education + Training*. https://doi.org/10.1108/ET-02-2023-0051

Salehudin, I., & Alpert, F. (2022). A deeper understanding of student preferences for in-class video use: A segmentation analyses of needs, group differences and preference clusters. *Education + Training*, *64*(4), 476–490. https://doi.org/10.1108/ET-02-2021-0045

Sánchez-Rivas, E., Ramos Núñez, M. F., Ramos Navas-Parejo, M., & De La Cruz-Campos, J. C. (2023). Narrative-based learning using mobile devices. *Education + Training*, *65*(2), 284–297. https://doi.org/10.1108/ET-06-2022-0244

Schöbel, S. M., Janson, A., & Leimeister, J. M. (2023). Gamifying online training in management education to support emotional engagement and problem-solving skills. *Journal of Management Education*, *47*(2), 166–203. https://doi.org/10.1177/10525629221123287

Ser Educacional RI. (2023). *Ser Educacional*. Retrieved December 10, 2024, from https://ri.sereducacional.com/

Sierra, J., & Rodríguez-Conde, M. J. (2023). Learning by ruling: Use of videogames to simulate public economics management. *The International Journal of Management Education*, *21*(2), 100819. https://doi.org/10.1016/j.ijme.2023.100819

Sierra, J., Yassim, M., & Suárez-Collado, Á. (2022). Together we can: Enhancing key 21st-century skills with international virtual exchange. *Education and Training*, *64*(6), 826–843. https://doi.org/10.1108/ET-05-2021-0171

Sin, C., Tavares, O., & Amaral, A. (2016). Student perceptions of the employability of the first degree in Portugal. *Education and Training*, *58*(9), 966–983. https://doi.org/10.1108/ET-09-2015-0088/FULL/XML

Stolze, A., & Sailer, K. (2022). Advancing HEIs' third-mission through dynamic capabilities: The role of leadership and agreement on vision and goals. *Journal of Technology Transfer*, *47*(2), 580–604. https://doi.org/10.1007/S10961-021-09850-9/TABLES/5

Story, J. (2023). Unique challenges of segmentation and differentiation for higher education. *Journal of Marketing for Higher Education*, *33*(1), 20–39. https://doi.org/10.1080/08841241.2021.1874589

Teece, D. J. (2018). Dynamic capabilities as (workable) management systems theory. *Journal of Management & Organization*, *24*(3), 359–368. https://doi.org/10.1017/JMO.2017.75

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, *18*, 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7

Thomas, N. J., & Baral, R. (2023). Mechanism of gamification: Role of flow in the behavioral and emotional pathways of engagement in management education. *International Journal of Management Education*, *21*(1). https://doi.org/10.1016/j.ijme.2022.100718

Thompson, Z., Yoon, H., & Booth, P. (2023). Dispersed assessment: A novel approach to enhancing student engagement during and beyond Covid-19. *The International Journal of Management Education*, *21*(2), 100811. https://doi.org/10.1016/j.ijme.2023.100811

Tian, X., Lo, V. I., & Zhai, X. (2021). Combining efficiency and innovation to enhance performance: Evidence from firms in emerging economies. *Journal of Management and Organization*, *27*(2), 295–311. https://doi.org/10.1017/jmo.2018.75

Tiberius, V., Hoffmeister, L., & Weyland, M. (2021). Prospective shifts in executive education: An international Delphi study. *The International Journal of Management Education*, *19*(3), 100514. https://doi.org/10.1016/j.ijme.2021.100514

Tiberius, V., Weyland, M., & Mahto, R. V. (2023). Best of entrepreneurship education? A curriculum analysis of the highest-ranking entrepreneurship MBA programs. *International Journal of Management Education*, *21*(1). https://doi.org/10.1016/j.ijme.2022.100753

Tomlinson, M. (2017). Forms of graduate capital and their relationship to graduate employability. *Education and Training*, *59*(4), 338–352. https://doi.org/10.1108/ET-05-2016-0090/FULL/XML

Tucker, B. P., Waye, V., & Freeman, S. (2019). The use and usefulness of academic research: An EMBA perspective. *The International Journal of Management Education*, *17*(3), 100314. https://doi.org/10.1016/j.ijme.2019.100314

UNESCO. (2022). Policy brief: The contribution of higher education institutions to lifelong learning. World Conference on Higher Education.

van Beurden, J., Borghouts, I., van den Groenendaal, S. M., & Freese, C. (2024). How Dutch higher HRM education prepares future HR professionals for the impact of technological developments. *The International Journal of Management Education*, *22*(1), 100916. https://doi.org/10.1016/J.IJME.2023.100916

Wardley, L. J., Nadeau, J., & Bélanger, C. H. (2024). A comparative analysis of institutional commitment: Are business students different? *Journal of Marketing for Higher Education*, *34*(1), 262–282. https://doi.org/10.1080/08841241.2021.1977449

WEF. (2020, October 19). *Companies now face an urgent choice: Go digital, or go bust*. World Economic Forum. Retrieved December 10, 2024, from https://www.weforum.org/agenda/2020/10/digital-transformation-or-bust/

Wilden, R., Devinney, T. M., & Dowling, G. R. (2016). The architecture of dynamic capability research identifying the building blocks of a configurational approach. *Academy of Management Annals*, *10*(1), 997–1076. https://doi.org/10.5465/19416520.2016.1161966

Winter, S. G. (2003). Understanding dynamic capabilities. *Strategic Management Journal*, *24*(10), 991–995. https://doi.org/10.1002/SMJ.318

Yduqs - RI. (2023). *YDUQS | Relações com Investidores*. Retrieved December 11, 2024.

Yesildag, A. Y., & Bostan, S. (2023). Movie analysis as an active learning method: A study with health management student. *International Journal of Management Education*, *21*(1). https://doi.org/10.1016/j.ijme.2022.100759

Yin, R. K. (2009). *Case study research: Design and methods* (vol 5). London: Sage.
Zahra, S. A., Sapienza, H. J., & Davidsson, P. (2006). Entrepreneurship and dynamic capabilities: A review, model and research agenda*. *Journal of Management Studies*, *43*(4), 917–955. https://doi.org/10.1111/J.1467-6486.2006.00616.X
Zhou, N., Wang, J., Liu, X., Yang, L., & Jin, X. (2023). The digital competence of Chinese higher education students and the linkage with their career adaptability. *Education and Training*, *65*(6–7), 939–954. https://doi.org/10.1108/ET-08-2022-0315
Zhou, S. S., Zhou, A. J., Feng, J., & Jiang, S. (2019). Dynamic capabilities and organizational performance: The mediating role of innovation. *Journal of Management and Organization*, *25*(5), 731–747. https://doi.org/10.1017/jmo.2017.20
Zollo, M., & Winter, S. G. (2002). Deliberate learning and the evolution of dynamic capabilities. *Organization Science*, *13*(3), 339–351. https://doi.org/10.1287/ORSC.13.3.339.2780

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