

FROM LEARNING TO LEADING: HIGHER EDUCATION IN THE DIGITAL ERA

Teresa Dieguez¹ and Conceição Castro²

¹*CiTUR, Polytechnic University of Cávado and Ave, Barcelos, Portugal.*

²*CEOS.PP, ISCAP, Polytechnic of Porto, Rua Jaime Lopes Amorim, s/n 4465-004 S. Mamede de Infesta, Portugal.*

ABSTRACT

The rapid advancement of digital transformation and Industry 4.0 is reshaping the job market, demanding professionals who possess both technical expertise and strong soft skills. This study explores how higher education cultivates digital and transversal competencies, employing a Systematic Literature Review (SLR) and an empirical case study to assess their integration into academic curricula. Findings reveal a disconnect between students' recognition of digital transformation's significance and their familiarity with its key concepts. While many express confidence in their digital abilities, critical soft skills such as leadership, communication, and problem-solving remain underemphasized. The study also highlights a strong entrepreneurial mindset among students, underscoring the need for education to integrate technical proficiency with business acumen and innovation. This research advocates for interdisciplinary learning, experiential education, and enhanced collaboration between universities and industry. It calls on policymakers to prioritize digital literacy initiatives and curriculum innovation to ensure alignment with labor market needs. While providing valuable insights, the study's limited sample size suggests the necessity for further research using longitudinal and mixed-method approaches. Ultimately, higher education must evolve to equip students with both technical expertise and the adaptability required to navigate the complexities of an increasingly digital and dynamic global economy.

KEYWORDS

Higher Education, Digital Skills, Soft Skills, Industry 4.0, Digital Transformation, Employability

1. INTRODUCTION

The rapid evolution of digital transformation and Industry 4.0 is reshaping the job market, requiring professionals to possess not only technical expertise but also strong soft skills such as leadership, critical thinking, adaptability, communication, and teamwork. As workplaces become more technology-driven and dynamic, the ability to navigate complex environments

and collaborate effectively is increasingly valued by employers. This shift places higher education institutions at the center of workforce preparation, as they play a crucial role in equipping students with the necessary skills to succeed in this rapidly changing landscape.

Despite the growing recognition of digital transformation, many students still lack familiarity with key concepts such as Industry 4.0 and the broader implications of digitalization beyond its technological aspects. This gap raises concerns about how well academic programs are preparing graduates for the evolving labor market. While many students report confidence in their digital abilities, there is often an insufficient emphasis on essential soft skills such as leadership, problem-solving, and emotional intelligence—competencies that are crucial for professional growth and career adaptability in an increasingly automated world.

This study explores the extent to which higher education fosters both digital and soft skills among students. By combining a Systematic Literature Review (SLR) with an empirical case study, the research provides a deeper understanding of how these competencies are being developed. Specifically, it examines whether academic programs effectively integrate digital and soft skills, identifies the key skills that students perceive as valuable in professional settings, and offers recommendations for improving education strategies to align with the realities of Industry 4.0.

Through bibliometric analysis and survey data, this research offers practical insights for educators, policymakers, and industry professionals. The findings emphasize the need for curriculum innovation, interdisciplinary learning, and stronger collaboration between universities and the job market. Ultimately, this study highlights the necessity of preparing students not only with technical knowledge but also with the adaptability and critical thinking skills required to thrive in a constantly evolving professional landscape. Following the introduction, Section 2 reflects the methodology. Section 3 presents the Systematic Literature Review and the Case Study, and Section 4 summarizes the main results and conclusions and outlines guidelines for future research.

2. METHODOLOGY

This study employs a mixed-method approach, integrating a Systematic Literature Review (SLR) with a Case Study, including a questionnaire survey to provide a comprehensive examination of soft skills development in higher education, under a scenario of digital transformation. The SLR serves as a foundation for mapping the existing academic landscape on this topic, facilitating the identification of key theoretical contributions, research gaps, and emerging trends related to the incorporation of soft skills into curricula and pedagogical practices. By adopting a bibliometric methodology, this review ensures a systematic and rigorous selection of the most relevant studies in the field.

In parallel, the empirical component of this research follows a quantitative and descriptive approach, employing a questionnaire as the primary data collection instrument. Rooted in a positivist paradigm, this study aims to assess the extent to which academic programs and teaching methodologies effectively nurture students' transversal competencies. Additionally, it seeks to pinpoint the most valued skills, offering theoretical insights to guide curriculum reform and enhance instructional strategies to better equip students for future professional challenges. Data were collected through an online questionnaire survey, which was validated by two academic scholars and two field experts. The survey remained open from January 4 to March

28, 2024, targeting a sample of 1,200 students. The adoption of a quantitative methodology ensures the objectivity of the findings, eliminating any potential researcher influence over participants, conditions, or events (Grégoire et al., 2015).

By combining a systematic literature review with empirical research, this study offers a holistic perspective on soft skills development in higher education. It contributes to the existing body of knowledge while providing actionable insights for the enhancement of educational policies and teaching practices.

2.1 RSL

A Systematic Literature Review (SLR) is recognized for its efficiency in systematically identifying and evaluating a research domain by compiling the most relevant studies on a given topic (Azarian et al., 2023). Additionally, it enables researchers to identify gaps in existing literature and propose potential avenues for future research, whether in the development of new theoretical frameworks, methodologies, constructs, variables, or entirely novel research inquiries (Cardenas et al., 2024).

Regarding bibliometric techniques, a comprehensive analysis was conducted on a substantial body of published literature, utilizing statistical tools to detect patterns in citations and co-citations, as well as trends based on year, country, author, journal, methodology, theoretical framework, and research focus. Given the current stage of knowledge on soft skills and digital transformation, this methodological approach is deemed appropriate (Paul & Criado, 2020). The SLR methodology follows the guidelines established by previous studies (Fernandes & Ferreira, 2022), ensuring the selection of a broad and relevant set of articles capable of guiding the discussion. The review process was carried out in three main phases: (1) database search in Scopus, (2) analysis using VosViewer software, and (3) article examination and synthesis.

For this study, articles from journals indexed in Scopus were selected (Baas et al., 2020; Singh & Arora, 2023), as it is currently the most extensive database of peer-reviewed literature abstracts and citations. Scopus includes nearly 25,000 actively indexed journals from more than 5,000 international publishers, with coverage extending back to 1996 in many cases (Vázquez et al., 2019). However, the potential risk of publication bias is acknowledged, as valuable research can also appear in lower-ranked journals. To refine the search, the following keywords were applied to the title, abstract, and keyword fields: “Soft Skills” and “Higher Education”. These terms were selected to ensure the identification of relevant articles exploring the intersection of soft skills and higher education in the context of digital transformation (SSHE). Further selection criteria included: (i) only peer-reviewed journal articles, (ii) publications in English, and (iii) no restrictions on publication date. After applying these parameters, an initial set of 138 articles was retrieved.

The application of this selection criterion ensures a focus on high-quality academic journals with rigorous scholarly standards. To facilitate the review process, an Excel database was created to systematically track and organize the retrieved articles. Each article underwent a thorough content analysis, ensuring an in-depth examination. Data were extracted and synthesized in the cluster analysis stage, following the methodology proposed by Kraus et al. (2020). A summary of all procedural steps undertaken in this study is presented in Figure 1.

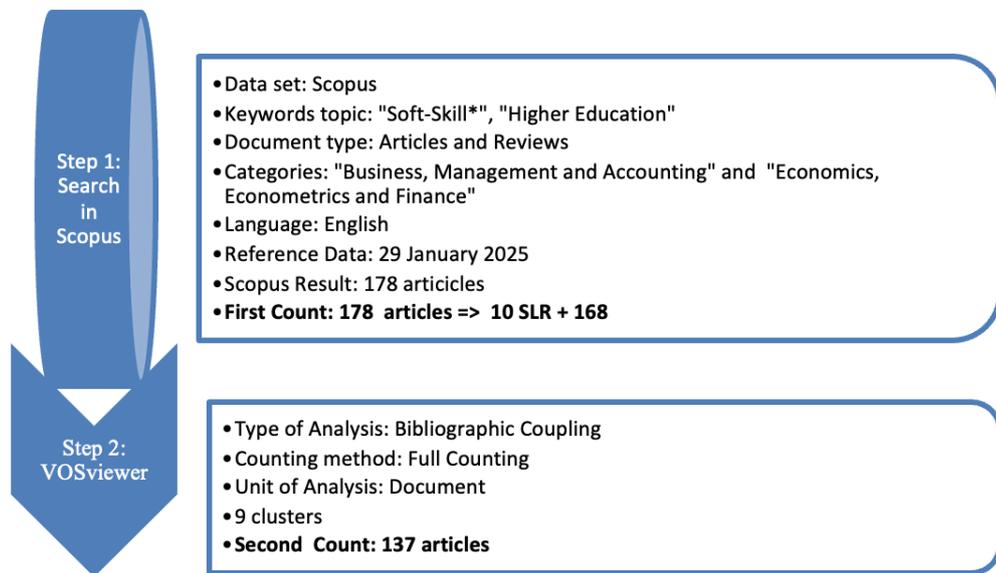


Figure 1. Research Protocol adopted

3. RESEARCH PROFILE

3.1 SLR

3.1.1 Descriptive Results

Figure 2 illustrates that the topic of soft skills and higher education in the context of higher education (SSHEDT) has been addressed in the literature in recent years, albeit in a relatively nascent stage. The dataset comprises 178 articles, which collectively received 1,906 citations, with 149 of them being cited. This results in an average of 13.33 citations per article and an H-index of 23 (Figure 2). The first publication on this subject appeared in 2008, with a more consistent publication trend emerging from 2015 onward. This indicates that the topic remains relatively recent in academic discourse.

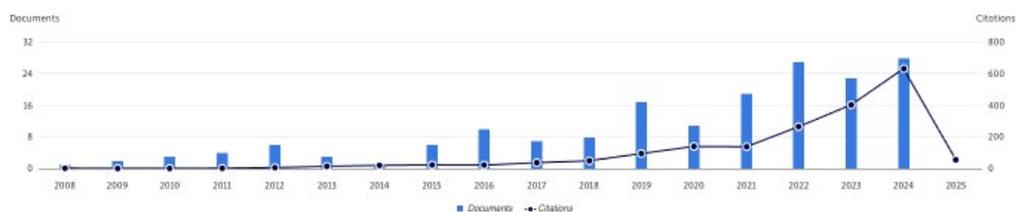


Figure 2. Publications and Citations by years

FROM LEARNING TO LEADING: HIGHER EDUCATION IN THE DIGITAL ERA

To assess the impact of these articles, we employed the number of citations as a metric. According to this criterion, the three most influential articles are: (1) *"Tourism Education: What about Entrepreneurial Skills?"* by Daniel et al. (2017), with 103 citations; (2) *"Enhancing Individual Employability: The Perspective of Engineering Graduates"* by Nilsson (2010), with 102 citations; and (3) *"The Soft Skills of Accounting Graduates: Perceptions versus Expectations"* by Dolce et al. (2020), with 100 citations (Table 1).

Table 1. Top Ten most cited authors

Documents	Year	<2008	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total		1	2	1	1	2	6	14	20	23	22	37	49	95	140	138	265	403	632	55	1,906
1 <i>Tourism Education: What about entrepren...</i>	2017	0	0	0	0	0	0	0	0	0	0	2	5	7	17	15	17	20	18	2	103
2 <i>Enhancing individual employability: The p...</i>	2010	0	0	0	0	0	2	4	5	5	5	9	7	9	22	8	10	10	6	1	103
3 <i>The soft skills of accounting graduates: pe...</i>	2020	0	0	0	0	0	0	0	0	0	0	0	0	0	1	12	19	29	38	1	100
4 <i>Balancing skills in the digital transformati...</i>	2022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	19	40	1	68
5 <i>Graduates' employability: What do gradua...</i>	2016	0	0	0	0	0	0	0	0	0	0	1	4	11	10	9	9	9	12	1	66
6 <i>Sustainable entrepreneurship education fa...</i>	2021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	11	40	5	64
7 <i>Knowledge and Skills Needed by Instructio...</i>	2015	0	0	0	0	0	0	0	0	0	1	3	5	5	8	7	11	5	17	0	62
8 <i>Graduates' employability skills based on c...</i>	2012	0	0	0	0	0	2	1	5	2	4	6	7	5	8	2	3	3	1	1	49
9 <i>Employability of international students: Str...</i>	2018	0	0	0	0	0	0	0	0	0	0	0	0	3	10	7	6	12	9	1	48
10 <i>Employers' perceptions on graduates in M...</i>	2011	0	0	0	0	0	2	1	5	2	1	6	2	9	4	1	6	3	4	0	46

Regarding the research methodology, 40% of the articles employ a qualitative approach, 28% adopt a mixed-methods approach, 24% are quantitative, and 8% are theoretical/conceptual (Figure 3 and Table 3).

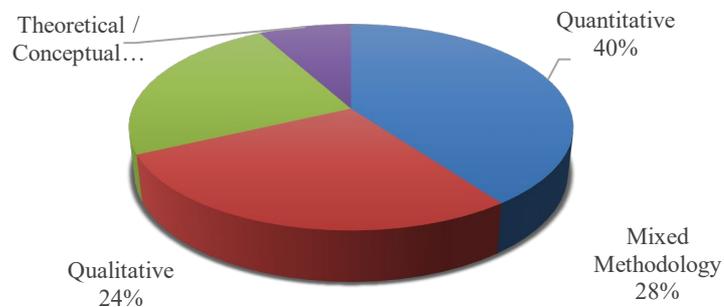


Figure 3. Research approach
Source: own elaboration

Regarding the countries of origin, Malaysia ranks first with 27 publications, followed by the United States with 25. Italy, Australia, and the United Kingdom precede Portugal, with 14, 13, and 10 publications, respectively. Portugal ranks sixth, with 9 publications, just ahead of India, Indonesia, and Spain, each with 8 publications (Figure 4).

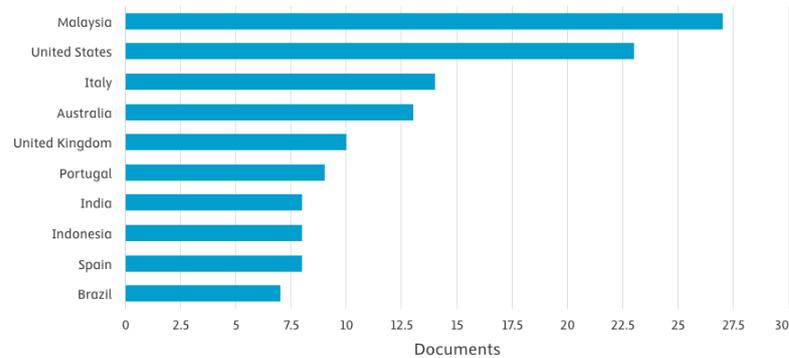


Figure 4. Documents per country
Source: own elaboration

The quality of the articles in the sample was assessed using three criteria. First, the Quartile metric, which classifies journals into Q1- Q4 based on citation performance and impact, using indices like SJR, with Q1 indicating the highest quality (Audretsch et al., 2024; Carranza & Carranza, 2021). Second, the h-index, defined as the number of articles (h) with at least h citations each, was considered. Finally, the ABS (Academic Journal Guide), which ranks journals from 1 to 4* based on reputation, peer-review quality, and academic impact (Amry et al., 2021; Stefanidis et al., 2024). Table 2 shows how the top ten most cited documents are ranking.

Table 2. Top Ten most cited articles relating quality indexes

Authors	Title	Journal	Quartile	h-index	ABS
Polluri & Mukashv (2024)	A crystallized exposition on promoting an entrepreneurial mindset in Kazakhstan higher education institutions	Entrepreneurship Education	3	28	-
Daniel et al. (2017)	Tourism Education: What about entrepreneurial skills?	Journal of Hospitality and Tourism Management	1	70	1
Dolce et al. (2020)	The soft skills of accounting graduates: perceptions versus expectations	Accounting Education	1	51	2
Goulart et al. (2022)	Balancing skills in the digital transformation era: The future of jobs and the role of higher education	Industry and Higher Education	2	32	1
Matsouka & Mihail (2016)	Graduates' employability: What do graduates and employers think?	Industry and Higher Education	2	32	1
Del Vecchio et al. (2021)	Sustainable entrepreneurship education for circular economy: emerging perspectives in Europe	International Journal of Entrepreneurial Behavior & Research	-	-	-
Ritzhaupt & Kumar (2015)	Knowledge and Skills Needed by Instructional Designers in Higher Education	Performance Improvement Quarterly	3	23	-
Omar et al. (2012)	Graduates' employability skills based on current job demand through electronic advertisement	Asian Social Science	4	41	-
Pham et al. ((2018)	Employability of international students: Strategies to enhance their experience on work-integrated learning (WIL) programs	Journal of Teaching and Learning for Graduate Employability	2	12	-
Ismail et al. (2011)	Employers' perceptions on graduates in Malaysian services sector	International Business Management	4	23	-

Source: own elaboration

Table 3. Top 25 most cited Authors, Title, Research Design and Objective

Authors	Title	Research Design	Research Objectives	Research Approach
Poffon & Mukashev (2024)	A crystalized exposition on promoting an entrepreneurial mindset in Kazakhstan higher education institutions	Survey, Structural Equation Modeling (PLS-SEM)	Promote entrepreneurial mindset among students and examine required skills based on student and faculty perceptions.	Quantitative
Daniel et al. (2017)	Tourism Education: What about entrepreneurial skills?	Case Study, Project-Based Learning, Design Thinking	Understand tourism students' perspective on entrepreneurship education within their courses.	Mixed Methodology
Dolce et al. (2020)	The soft skills of accounting graduates: perceptions versus expectations	Survey (251 graduates, 74 employers)	Assess the match between graduates' perceptions and employers' expectations on soft skills in accounting education.	Quantitative
Goulat et al. (2022)	Balancing skills in the digital transformation era: The future of jobs and the role of higher education	Qualitative (Interviews, Focus Groups, Systemic Analysis)	Evaluate relationship between IT job market demands and higher education curricula.	Qualitative
Matsunaka & Mihail (2016)	Graduates' employability: What do graduates and employers think?	Survey (178 graduates, 29 HR managers)	Investigate perceptions of university graduates and HR managers on employability and soft skills.	Quantitative
Del Vecchio et al. (2021)	Sustainable entrepreneurship education for circular economy: emerging perspectives in Europe	Cross-case analysis	Examine entrepreneurship education programs in European universities focused on circular economy.	Qualitative
Ritzhaupt & Kumar (2015)	Knowledge and Skills Needed by Instructional Designers in Higher Education	Interviews (8 instructional designers)	Identify essential knowledge and skills for instructional designers in higher education.	Qualitative
Omair et al. (2012)	Graduates' employability skills based on current job demand through electronic advertisement	Content Analysis (300 job advertisements)	Analyze employability skills demanded by Malaysian employers through job ads.	Quantitative
Pham et al. (2018)	Employability of international students: Strategies to enhance their experience on work-integrated learning (WIL) programs	Systematic Literature Review	Explore challenges and support strategies for international students in WIL programs.	Qualitative
Ismail et al. (2011)	Employers' perceptions on graduates in Malaysian services sector	Survey (749 employers)	Assess employer perceptions on Malaysian graduates' skills and employability.	Quantitative
Succi & Wiesend (2019)	Walk the talk: soft skills' assessment of graduates	Survey (300 HR managers, 240 graduates)	Evaluate assessment tools for soft skills during recruitment and post-employment training.	Mixed Methodology
Kim et al. (2011)	Training soft skills via e-learning: International chain hotels	Survey, Structural Equation Modeling (SEM)	Investigate importance of soft skills for hotel employees and willingness to use e-learning for training.	Quantitative
Wolcott & Sappant (2021)	Critical thinking in accounting education: Status and call to action	Literature Review	Identify key recommendations to develop critical thinking skills in accounting education.	Theoretical / Conceptual
Sato et al. (2021)	Graduate employability and higher education's contributions to human resource development in sport business before and after COVID-19	Delphi Study	Analyze how COVID-19 affected graduate employability and human resource development in the sports sector.	Mixed Methodology
Oosthuizen et al. (2021)	Teamwork in the accounting curriculum: stakeholders' expectations, accounting students' value proposition, and instructors' guidance	Qualitative (Surveys, Interviews)	Explore teamwork skill development in accounting education.	Mixed Methodology
Solomon & Laranjeiro (2018)	The employability skills of graduates and employers' options in Portugal: An explorative study of anticipative and remedial strategies	Multiple Case Study (10 firms, interviews)	Examine relationship between graduates' skills and employers' strategies for hiring and training.	Qualitative
Succi (2019)	Are you ready to find a job? Ranking of a list of soft skills to enhance graduates' employability	Pilot Study, Survey	Rank and validate soft skills necessary for employability.	Quantitative
Grijalvo et al. (2022)	Computer-based business games in higher education: A proposal of a gamified learning Framework	Action Research, Surveys, Neural Networks Analysis	Evaluate use of business simulations to develop soft skills and knowledge.	Mixed Methodology
Xu et al. (2022)	Hospitality and Tourism Higher Education in the Post-COVID Era: Is It Time to Change?	Focus Groups, Interviews	Assess curriculum changes needed in hospitality and tourism education post-COVID-19.	Qualitative
Gokuladas (2010)	Technical and non-technical education and the employability of engineering graduates: an Indian case study	Correlation, Regression Analysis	Analyze impact of technical and soft skills on engineering graduates' employability.	Quantitative
Assoutou (2022)	Impediments and pressures to incorporate soft skills in Higher Education accounting studies	Mixed Methods (Survey & Interviews)	Explore barriers and pressures in integrating soft skills into Greek accounting education.	Mixed Methodology
Francau et al. (2018)	Challenges to higher education in the knowledge economy: anti-intellectualism, materialism and employability	Survey (945 students)	Examine influence of anti-intellectualism on students' employability and education satisfaction.	Quantitative
Hamid et al. (2014)	Malaysian graduates' employability skills enhancement: An application of the importance performance analysis	Importance-Performance Analysis	Identify skill gaps in Malaysian graduates' employability skills.	Quantitative
Nanfal & Skalte Oussis (2018)	Quality higher education drives employability in the Middle East	Survey, Focus Groups, Interviews	Analyze how soft skills and liberal arts education impact employability in the Middle East.	Mixed Methodology
De Villiers (2021)	Seven principles to ensure future ready accounting graduates—a model for future research and practice	Literature Review, Focus Groups, Interviews, Workshops	Identify principles to prepare accounting graduates for automation and AI-driven future work environments.	Theoretical / Conceptual

Source: own elaboration

3.1.2 Bibliometric Analysis

Bibliometric techniques are widely applied to represent the structure of a given research field by categorizing its components into distinct groups. These methods examine the interconnections among disciplines, research areas, scientific specialties, and individual publications, employing a quantitative approach to describe and interpret these relationships. By systematically tracking scientific output, bibliometric analysis enables the identification of patterns and dynamics that characterize the evolution of scientific domains (Chen, 2006; Zhang et al., 2017). To define and clarify the research clusters, the VosViewer software was employed. Specifically, the bibliographic coupling method was used, considering documents as the primary unit of analysis. This technique clusters articles based on the references they share, allowing us to identify thematic proximity among the studies analyzed (Zupic & Čater, 2015). In doing so, it provides insights into the intellectual foundations that underpin the research field (Chen, 2017).

Following the methodological framework outlined by van Eck and Waltman (2010), the full counting method was applied, using documents as the core unit of analysis. In systematic literature reviews, it is standard practice to select highly cited articles for bibliographic coupling analysis (e.g., Ferreira et al., 2024). The greater the overlap in references between two articles, the stronger their bibliometric relationship. All the 137 selected articles were processed through VosViewer, leading to the identification of nine research clusters, with 763 links and a total link strength of 1.185, as illustrated in Figure 5.

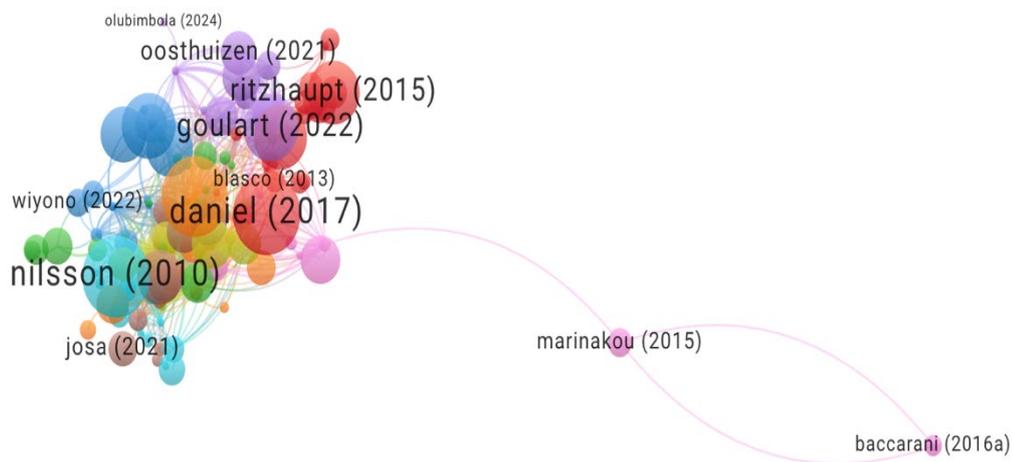


Figure 5. Clusters of Research Themes Identified Through Bibliographic Coupling Using VOSviewer

Source: own elaboration

This visualization appears to represent co-authorship or citation relationships among key publications, with clusters reflecting distinct research communities or groups of authors focusing on shared themes. Certain nodes, such as *Nilsson (2010)* and *Daniel (2017)*, stand out due to their larger size, indicating their influence and central role in the field as frequently cited works. In contrast, smaller nodes and clusters represent emerging areas or newer contributors, potentially highlighting innovative studies or underexplored topics. The dense connectivity observed among many nodes suggests a well-established network of collaboration and shared

research focus within the academic community. However, the separation of smaller clusters, such as those around Marinakis (2015) may indicate niche areas of investigation or topics less integrated into the broader research network.

The visualization also demonstrates temporal evolution in the field, with publications from different years, such as 2010, 2017, and 2022, reflecting how newer studies build on foundational works, indicating a dynamic progression of knowledge and priorities over time. This network provides valuable insights into the structure of research collaboration and the key studies shaping the discourse.

A co-occurrence analysis was also conducted, based on source data and using the Full Counting method, with a minimum number of keyword occurrences set to 5. This initial analysis identified a total of 687 keywords, of which only 13 met the threshold (Table 4). The list was subsequently refined, resulting in 685 keywords, with 12 meeting the threshold. The final analysis produced 4 clusters, comprising 31 links and a total link strength of 110 (Figure 6).

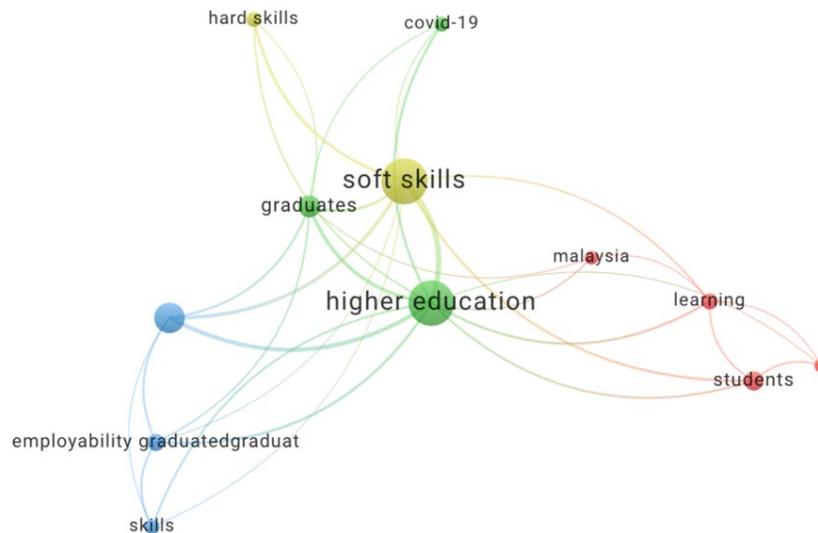


Figure 6. Clusters of Research Themes Identified Through Co-occurrence Using VOSviewer
Source: own elaboration

The visualization provides an overview of the research themes related to soft skills and higher education, mapped using VOSviewer. It highlights key clusters of ideas and how they are interconnected within the research field. At the center of the network are the concepts of "soft skills" and "higher education," reflecting their importance and strong links within this area of study. Closely connected to these central themes is "graduates," emphasizing the focus on how soft skills contribute to graduate outcomes. Other clusters, such as "hard skills" and "employability," highlight the balance and interaction between technical expertise and non-technical skills in shaping professional success. Some terms, like "Malaysia" and "COVID-19," point to regional and contextual factors that influence the research. Meanwhile, nodes like "students" and "learning" draw attention to the educational processes involved in developing these skills. The size of the nodes and the thickness of the connections represent the strength of

relationships, showing the relative importance of each term and how they link to others. This network offers a clear picture of the research landscape and helps identify emerging trends and priorities in the field.

The two graphs (Figure 5 and Figure 6) collectively illustrate the evolving discourse on soft skills, employability, and education, offering insights into the field's development and priorities. The integration of pedagogical, economic, and regional themes highlights an interdisciplinary approach to understanding the role of soft skills in education. This cross-disciplinary perspective underscores the complexity and multifaceted nature of the topic. The inclusion of contextual terms, such as "COVID-19," and geographic focus areas, such as "Malaysia," reflects emerging challenges and situational factors that are shaping the field's priorities. These elements emphasize how global and regional contexts influence the development and application of soft skills in education.

Furthermore, the co-authorship and citation networks reveal how foundational studies continue to drive ongoing research, creating a layered and interconnected understanding of the field. This dynamic network of studies and collaborations illustrates the continuous growth of knowledge and the field's responsiveness to new challenges and opportunities. In other words, these visualizations highlight a vibrant and interconnected research landscape where soft skills in education remain a critical and evolving focus, shaped by both foundational work and emerging trends.

3.1.3 Discussion

The results of the bibliometric analysis reinforce the growing importance of soft skills in higher education, particularly in preparing graduates for the evolving demands of the job market. While technical expertise remains essential, employers increasingly seek professionals who possess strong interpersonal, cognitive, and problem-solving abilities. Skills such as adaptability, teamwork, critical thinking, emotional intelligence, and effective communication are now considered fundamental for success in modern workplaces, where collaboration and flexibility are key (Dieguez et al., 2021).

In today's fast-changing and technology-driven environment, the ability to adapt and respond to new challenges is crucial. For example, as automation and artificial intelligence reshape industries, professionals who can quickly learn new systems, troubleshoot issues, and develop creative solutions will have a competitive advantage. Similarly, critical thinking and innovation are becoming indispensable in fields such as e-commerce and data security, where professionals must assess risks, analyze information, and make strategic decisions in real time. Soft skills also play a vital role in workplace dynamics and leadership (Loureiro, et al., 2022). Effective communication and teamwork are essential in multidisciplinary environments, where professionals from diverse fields—such as engineering, design, and business - must collaborate to develop new products and services. In areas like digital marketing, professionals must not only understand data analytics but also communicate insights persuasively and work closely with creative teams to develop engaging content (Chaffey & Smith, 2022).

Likewise, in tourism and hospitality, emotional intelligence is key to managing customer interactions and handling complex service-related challenges. Given their importance, it is essential that higher education institutions integrate the development of soft skills into their curricula (Goulart et al., 2022). This can be achieved through project-based learning, internships, case studies, and interdisciplinary collaborations that mimic real-world professional environments. For instance, students working on collaborative robotics projects gain hands-on experience in teamwork and problem-solving, while those in digital marketing programs refine

their adaptability and strategic thinking by responding to shifts in consumer behavior. In tourism and hospitality programs, students can develop leadership and emotional intelligence through role-playing exercises and real-world scenarios (de la Mora Velasco et al., 2024).

By embedding soft skills into education, universities can better prepare students to meet industry expectations and navigate an increasingly complex job market. Beyond making graduates more employable, these competencies also empower them to lead, innovate, and contribute meaningfully to their professional environments. As the workplace continues to evolve, the ability to combine technical knowledge with strong interpersonal and cognitive skills will remain a decisive factor in career success (García-Pére et al., 2021).

3.2 Case Study

3.2.1 Data and Sample

This research builds upon recommendations proposed by Dieguez (2023) during the FAIM 2023 Conference held in June 2023 in Porto, Portugal. Anchored in a positivist paradigm, the study seeks to evaluate whether the curricula and teaching methods across various courses effectively foster the development of soft skills from the perspective of students. Furthermore, it aims to identify critical competencies, offering theoretical insights to inform the redesign of curricula and teaching strategies to better equip students for future challenges. Adopting a descriptive quantitative research approach, the study refrains from intervening in individuals, conditions, or events, aligning with the principles outlined by Grégoire et al. (2015). A structured questionnaire, validated by two academics and two experts from the field, served as the primary tool for data collection. The survey was administered online between January 4th and March 28th, 2024, targeting a population of 1,200 students.

The survey took place within students from IPCA, the Polytechnic University of Cávado and Ave (IPCA), based in the North of Portugal, the youngest Public Polytechnic with 30 years old and with a special High School of Professional Technical Courses (Dieguez & Castro, 2024).

3.2.2 Data Collection and Results

The online survey was conducted from January 4th to March 28th, 2024, with a target population of 1,200 students. The questionnaire was divided into five sections: Sociodemographic Data, Digital Transformation, Digital Skills, Professional Proficiency, and Industry 4.0. To improve the reliability of the statistical analysis, the 40 courses offered were categorized into four academic domains: Technology, Design, Management & Marketing, and Tourism & Hospitality. A total of 250 responses were collected, representing 20.83% of the student population. The sample covered a variety of fields, including Business Consultancy, Digital Audiovisual, Food Innovation, Tourism and Adventure, Digital Marketing, Robotics, and Data Security. Although students' attendance status and employment situation were included in the Sociodemographic Data section, these factors were excluded from the final analysis as they did not impact the results.

- **Socio-demographic data**

The sample obtained maintains an equal gender distribution, with 50% male and 50% female participants. A significant portion of respondents (50%) are from Cluster I - Technology, with men showing a stronger preference for technology-related programs, while women are more inclined toward management-focused courses. The majority (83%) are aged between 18 and 25,

a group that typically favors vocational education over conventional degree programs upon completing secondary school.

Additionally, 79% of respondents are currently employed and possess prior work experience. Of those with professional backgrounds, 51% have between one and two years of experience, while 13.9% have been in the workforce for more than 11 years. These results indicate that individuals with established careers are actively seeking to enhance their skill sets to keep pace with the evolving job market shaped by Industry 4.0.

- **Digital Transformation**

When asked about their understanding of digital transformation, 49% of respondents stated that they were unfamiliar with the term. This is particularly concerning given that 41.94% of the surveyed students are enrolled in technology-related programs. While the majority of those aware of digital transformation associated it with leveraging technology to drive change, the high percentage of students lacking awareness remains noteworthy. Nonetheless, 80% acknowledged the significant impact digital transformation will have on the future labor market.

- **Digital Skills**

In assessing digital skills, the study gathered students' self-evaluations regarding their perception of digital transformation's significance for organizations, how the topic is integrated into their coursework, and their suggestions for activities to enhance digital competencies. Notably, 95% of students acknowledged possessing digital skills.

A key observation is that female students tend to favor management-related technical programs, whereas male students gravitate toward technology-oriented courses. Interestingly, the proportion of female students who claim to have digital skills (50%) is comparable to that of male students (56%), suggesting that digital proficiency is not the primary factor influencing their academic choices. Regarding the integration of digital competencies into their courses, 70% of students identified problem-solving as a key area of focus, with 80% recognizing its central role. However, 30% of respondents felt that essential soft skills such as empathy, persistence, and leadership are not being addressed in their academic programs.

This is particularly relevant given that 40.5% of students aspire to create their own job opportunities. Since 50% of students acknowledge the importance of leadership, empathy, and persistence in achieving these goals, it is worth considering their perspectives on how these competencies should be fostered. Encouraging teamwork and expanding discussions on digital transformation and technological proficiency were among the most frequently suggested activities for curriculum enhancement.

- **Professional Proficiency**

In the professional domain, students exhibit a strong dedication to their academic pursuits, with 83% of respondents considering their coursework fundamental to their career development. Notably, approximately 60% of these students belong to Group I - Technology, indicating a pronounced belief among technology-focused students in the relevance of their expertise for future professional success. Moreover, as Industry 4.0 advances, professionals with this profile will play a pivotal role in driving digital transformation, integrating digital technologies, and optimizing industrial processes for enhanced efficiency and productivity.

Within this professional framework, the study also examined the entrepreneurial aspirations of second-year students enrolled in Higher Technical Courses at IPCA. The results reveal that 45% of respondents expressed an intention to establish their own businesses, demonstrating a significant entrepreneurial inclination within this academic cohort.

• **Industry 4.0**

The final part of the questionnaire assessed students' awareness of Industry 4.0. When questioned about their familiarity with the term, 40.69% of respondents admitted they had never heard of it. This figure closely mirrors the 49% of students who were unfamiliar with digital transformation, prompting several important considerations. Is Industry 4.0 primarily understood and discussed within select industrial or academic circles? Is the knowledge being generated in this field failing to reach a wider audience? Are educational institutions struggling to keep up with technological advancements, thereby not adequately preparing students for evolving labor market demands? Additionally, do policymakers, particularly within the European Union, recognize the existing disparities between member states in terms of access to emerging technologies, which may lead to varying timelines for adopting digital transformation and Industry 4.0?

Table 4 presents a summary of the main findings of this study. These results align with the research presented by Dieguez (2023) at the FAIM 2023 Conference, held in June in Porto, Portugal, reinforcing concerns about the uneven dissemination of knowledge and the challenges associated with integrating Industry 4.0 concepts into education and industry.

Table 4. Summary of the results obtained (Digital Competencies, Professional Future, Industry

Section	Question	Relevance
Digital Transformation	Knowledge	51% do not know
	Concept	Always in a technological perspective and never in terms of organizational culture
	Relevance	80% attach importance and great importance
Digital Skills	Selfevaluation	95% admit to having skills
	Importance for organizations (> 75%)	RDI= 72%; Management = 74%
		Leadership & Communication = 65%
	Course approach (>65%)	Decision-making & analytical skills = 72%
		Critical thinking = 74%
		Problem-solving = 70%
		Leadership workshops
	Activities to promote Digital skills	Workshops on Project Management & Planning
		Workshops on sharing good business practices
		Workshops on Teamwork
Workshops on Digital Transformation		
Professional Proficiency	Importance of the course & expectations	Workshops on Technological knowledge
		Very important = 68%
		Important = 26%
		Create its own job = 5%

Source: own elaboration

3.2.3. Discussion

The findings of this study highlight critical insights into the alignment between higher education curricula and the evolving demands of the digital economy. While students demonstrate a strong awareness of the importance of digital transformation and its impact on the job market, a significant portion remains unfamiliar with key concepts such as Industry 4.0. This lack of awareness is particularly concerning given the increasing integration of digital technologies across industries. The fact that nearly half of the surveyed students had never encountered the term "digital transformation," despite 41.94% being enrolled in technology-related programs,

raises important concerns about how well these concepts are embedded within academic curricula. It suggests a gap between the rapid technological advancements shaping the workforce and the extent to which students are being prepared to navigate these changes.

Despite this knowledge gap, students exhibit confidence in their digital skills, with 95% reporting proficiency. However, the study also reveals disparities in how digital competencies are developed and perceived across different fields (Zhao et al., 2021). Gender differences in course selection indicate that male students predominantly opt for technology-oriented programs, whereas female students tend to gravitate toward management-related fields (Jhan et al. 2022). Interestingly, the proportion of male and female students who claim to possess digital skills is nearly identical, suggesting that digital proficiency is not necessarily a determinant in academic or career choices. This underscores the need for universities to promote digital literacy across all disciplines, ensuring that students, regardless of their academic background, are equipped with the skills necessary to engage with technological advancements in their respective fields.

A key concern emerging from this study is the insufficient emphasis on soft skills within higher education curricula (Asonitou, 2022). While problem-solving is recognized as a major focus by 70% of students, essential competencies such as leadership, empathy, and persistence appear to be largely overlooked, with 30% of students stating that these skills are not addressed at all. Given that 40.5% of students aspire to start their own businesses, and half acknowledge the importance of leadership and resilience in achieving their goals, it becomes evident that higher education must do more to integrate these competencies into academic programs. Traditional coursework alone may not be sufficient; instead, universities should incorporate more experiential learning, interdisciplinary collaboration, and entrepreneurial initiatives to foster these essential skills (Etzkowitz et al., 2022).

Another key finding is the strong belief among students in the value of their education for professional growth, with 83% considering their coursework fundamental to their career development. The predominance of students from technology-related fields (60%) further reinforces the perception that digital skills are essential for future job opportunities. As Industry 4.0 continues to transform the labor market, professionals with expertise in digitalization, automation, and intelligent systems will be increasingly in demand. This highlights the urgent need for universities to ensure that students receive not only theoretical knowledge but also practical, hands-on experience with emerging technologies to enhance their employability (Rongmin & Fah, 2024).

The study also reveals a strong entrepreneurial inclination among students, with 45% expressing a desire to establish their own businesses. This demonstrates that many students are not solely focused on traditional employment but are also seeking opportunities for innovation and self-employment (Melak & Derbe, 2022). However, for this ambition to materialize, universities must provide greater support in developing entrepreneurial skills, business acumen, and strategic thinking. This could be achieved through mentorship programs, incubators, and coursework designed to equip students with the necessary tools to navigate competitive and rapidly evolving markets (Aithal & Aithal, 2023).

Beyond institutional efforts, the study raises broader questions about the role of policymakers in addressing disparities in access to digital knowledge and technology. The European Union and other governing bodies must recognize that gaps in digital education and technological awareness can lead to unequal workforce preparedness across different regions. A lack of exposure to Industry 4.0 concepts could result in slower adoption rates in certain areas, creating disadvantages for students entering the job market. Ensuring equitable access to emerging technologies and fostering collaboration between universities and industries will be crucial in bridging these gaps (Afzal et al. 2023).

4. CONCLUSION

This study reinforces the critical role of higher education in preparing students for the evolving demands of the digital economy and Industry 4.0. The findings highlight the increasing importance of both digital and transversal competencies - such as leadership, creativity, communication, empathy, collaboration, and persistence - which are essential for success in today's dynamic labor market. Notably, these competencies do not appear to be significantly influenced by factors such as gender, age, field of study, or professional experience, underscoring the need for a more integrated and inclusive approach to education. Despite students' high self-reported proficiency in digital skills, a significant gap in conceptual understanding persists. Many associate digital transformations primarily with technology, overlooking its broader implications for organizational culture and business strategy. Similarly, a substantial proportion of students remain unfamiliar with the concept of Industry 4.0, even though they acknowledge its transformative impact on the workforce. These findings indicate an urgent need to enhance curricular integration of these topics, ensuring that students not only acquire technical skills but also develop a deeper understanding of how digitalization reshapes industries and work environments.

The study also underscores the need for a balanced approach to education, one that fosters both technical expertise and essential soft skills. Students identified leadership, communication, decision-making, and analytical thinking as crucial for effectively integrating digital competencies into their studies and future careers. They also emphasized the importance of critical thinking and problem-solving. Furthermore, they expressed strong support for incorporating workshops on leadership, project management, best business practices, teamwork, and digital transformation into their coursework. This highlights the growing demand for an educational model that prioritizes hands-on, experience-based learning.

Entrepreneurial ambition emerged as another significant trend, with a considerable number of students expressing aspirations to start their own businesses. This finding further reinforces the need for higher education institutions to foster entrepreneurship through targeted initiatives such as incubators, industry partnerships, and project-based learning opportunities. By nurturing innovation and equipping students with strategic and managerial competencies, universities can better prepare graduates to thrive in competitive and rapidly evolving markets.

Beyond academia, this study also carries important implications for policymakers and industry leaders. Supporting educational policies that promote digital literacy, encourage collaboration between academia and industry, and invest in workforce development programs is crucial for sustaining a competitive digital economy. Strengthening industry-university partnerships will ensure that education remains aligned with market needs, fostering a more adaptable and future-ready workforce.

While this study offers valuable insights into the role of higher education in preparing students for the digital economy and the challenges of Industry 4.0, it has several limitations that should be acknowledged. One of the main constraints is the relatively small sample size, which may not fully capture the diversity of the student population or allow for broad generalizations. Additionally, the reliance on self-reported data introduces potential bias, as students may either overestimate or underestimate their actual competencies. Another limitation is the lack of a longitudinal perspective. Since the study presents a snapshot of students' digital skills and understanding at a particular moment, it does not track how these competencies evolve over time or after they enter the workforce. Moreover, the findings are shaped by a specific

institutional and geographical context, meaning that differences in educational approaches, national policies, and labor market demands may influence the results.

To build on these findings, future research should consider longitudinal studies that follow students' digital skill development throughout their academic journey and into their professional careers. Comparative analyses across institutions and disciplines would also provide a clearer picture of best practices in digital education. Furthermore, qualitative approaches, such as interviews and focus groups, could offer deeper insights into students' perceptions, challenges, and experiences with digital transformation and Industry 4.0.

Another important avenue for future research is the role of university-industry partnerships in fostering digital competencies. Investigating how collaborations with businesses, internships, and project-based learning impact students' readiness for the workforce could provide valuable guidance for curriculum development. Additionally, further exploration of national and institutional policies on digital literacy, as well as the integration of emerging technologies like artificial intelligence and virtual reality in education, would help refine strategies for equipping students with relevant skills.

In conclusion, this study highlights the need for a holistic educational model that integrates technical proficiency with essential soft skills, ensuring that graduates are well-equipped for the challenges and opportunities of the digital age. Higher education institutions play a pivotal role in shaping the human capital required for Industry 4.0, making it imperative to adopt innovative pedagogical strategies that align with the realities of the modern workforce. Only through a forward-thinking and adaptable educational framework can universities prepare students to navigate and succeed in a rapidly changing global economy.

REFERENCES

- Afzal, A. et al., 2023. Addressing the digital divide: Access and use of technology in education. *Journal of Social Sciences Review*, Vol. 3, No. 2, pp. 883-895.
- Aithal, P. S. and Aithal, S., 2023. Super Innovation in Higher Education by Nurturing Business Leaders through Incubationship. *International Journal of Applied Engineering and Management Letters (IAEML)*, Vol. 7, No. 3, pp. 142-167.
- Amry, D. K. et al., 2021. The new inclusive role of university technology transfer: Setting an agenda for further research. *International Journal of Innovation Studies*, Vol. 5, No. 1, pp. 9-22.
- Asonitou, S., 2022. Impediments and pressures to incorporate soft skills in Higher Education accounting studies. *Accounting Education*, Vol. 31, No. 3, pp. 243-272.
- Audretsch, D. B. et al, 2024. Do entrepreneurial ecosystems foster sustainable development? *International Entrepreneurship and Management Journal*, Vol. 20, No. 1, pp. 1-37.
- Azarian, M. et al., 2023. Do We Perform Systematic Literature Review Right? A Scientific Mapping and Methodological Assessment. *Logistics*, Vol. 7, No. 4, 89.
- Baas, J. et al., 2020. Scopus as a curated, high-quality bibliometric data source for academic research in quantitative science studies. *Quantitative science studies*, Vol. 1, No. 1, pp. 377-386.
- Cárdenas, J. et al., 2024. Networks and innovation: enhancing the knowledge through a bibliometric network analysis. *International Journal of Technology Management*, Vol. 94, No. 2, pp. 182-212.
- Carranza, Y. M. G., & Carranza, E. K. G., 2021. Emprendimientos turísticos sustentables: Una revisión de la literatura. *Ciencia Latina Revista Científica Multidisciplinar*, Vol. 5, No. 6, pp.13612-13624.
- Chaffey, D. and Smith, P. R., 2022. *Digital marketing excellence: planning, optimizing and integrating online marketing*. Routledge, London, UK.

- Chen, C., 2006. CiteSpace II: Detecting and visualizing emerging trends and transient patterns in scientific literature. *Journal of the American Society for information Science and Technology*, Vol. 57, No. 3, pp. 359-377.
- Chen, C., 2017. Science mapping: a systematic review of the literature. *Journal of data and information science*, Vol. 2, No. 2, pp. 1-40.
- Daniel, A. et al., 2017. Tourism Education: What about entrepreneurial skills? *Journal of Hospitality and Tourism Management*, Vol. 30, pp. 65-72.
- de la Mora Velasco, E., et al., 2024. Exploring Instructional Strategies in Tourism and Hospitality Education: A Comprehensive Review of Literature. *Journal of Hospitality & Tourism Education*, pp. 1-12.
- De Villiers, R., 2021. Seven principles to ensure future-ready accounting graduates—a model for future research and practice. *Meditari Accountancy Research*, Vol. 29, No. 6, pp. 1354-1380.
- Del Vecchio, P. et al., 2021. Sustainable entrepreneurship education for circular economy: Emerging perspectives in Europe. *International Journal of Entrepreneurial Behavior & Research*, Vol. 27, No. 8, pp. 2096-2124.
- Dieguez, T. and Castro, C., 2024. Preparing for Industry 4.0: Student Insights on Digital Skills and Change. In A. Viana & P. Isaías (Eds.), *Proceedings of the International Conference on Applied Management Advances in the 21st Century (AMA21 2024)*, pp. 17-22.
- Dieguez, T. et al., 2021, November. Higher education as an engine of entrepreneurial leadership skills in a digital area transformation. *Proceedings of the 17th European Conference on Management, Leadership & Governance*. Valletta, Malta, pp. 152-X.
- Dieguez, T., 2023, June. The Leadership Role in Fostering an Innovation Culture. In *International Conference on Flexible Automation and Intelligent Manufacturing*, pp. 813-820. Cham, Springer Nature Switzerland.
- Dolce, V. et al., 2020. The soft skills of accounting graduates: Perceptions versus expectations. *Accounting Education*, Vol. 29, No. 1, pp. 57-76.
- Etzkowitz, H. Et al., 2022. Shaping the entrepreneurial university: Two experiments and a proposal for innovation in higher education. *Industry and Higher Education*, Vol. 36, No. 1, pp. 3-12.
- Fernandes, A. J. and Ferreira, J. J., 2022. Entrepreneurial ecosystems and networks: a literature review and research agenda. *Review of Managerial Science*, Vol. 16, No. 1, pp. 189-247.
- Ferreira, J. J. et al., 2024. Innovative business models of SMEs: state-of-the-art and future research agenda. *Journal of Small Business and Enterprise Development*, Vol. 31, No. 3, pp. 445-472.
- Frunzaru, V. et al., 2018. Challenges to higher education in the knowledge economy: anti-intellectualism, materialism and employability. *Knowledge Management Research & Practice*, Vol. 16, No. 3, pp. 388-401.
- García-Pérez, L. et al., 2021. Skills for a working future: How to bring about professional success from the educational setting. *Education sciences*, Vol. 11, No. 1, 27.
- Gokuladas, V. K., 2010. Technical and non-technical education and the employability of engineering graduates: an Indian case study. *International Journal of Training and Development*, Vol. 12, No. 2, pp. 130-143.
- Goulart, V. G. et al., 2022. Balancing skills in the digital transformation era: The future of jobs and the role of higher education. *Industry and Higher Education*, Vol. 36, No. 2, pp. 118-127.
- Grégoire, D.A. et al., 2015. The mind in the middle: Taking stock of affect and cognition research in entrepreneurship. *International Journal of Management Reviews*, Vol. 17, No. 2, pp.125-142.
- Grijalvo, M. et al., 2022. Computer-based business games in higher education: A proposal of a gamified learning framework. *Technological Forecasting and Social Change*, Vol. 178, 121597.
- Hamid, M. S. A. et al., 2014. Malaysian graduates' employability skills enhancement: an application of the importance performance analysis. *Journal for Global Business Advancement*, Vol. 7, No. 3, pp. 181-197.

- Ismail, R., et al. 2011. Employers' perceptions on graduates in Malaysian services sector. *International Business Management*, Vol. 5, No 3, pp. 184-193.
- Jhan, Y. C. et al., 2022. Individual differences in digital game-based supply chains management learning: Evidence from higher vocational education in Taiwan. *Sustainability*, Vol. 14, No. 8, 4614.
- Kim, J. et al., 2011. Training soft skills via e-learning: international chain hotels. *International Journal of Contemporary Hospitality Management*, Vol. 23, No. 6, pp. 739-763.
- Kraus, S. et al., 2020. The art of crafting a systematic literature review in entrepreneurship research. *International Entrepreneurship and Management Journal*, Vol. 16, pp. 1023-1042.
- Loureiro, P. et al., 2022. Higher education as a driver for sustainable transformation and leadership. *International Journal of Multidisciplinary Research and Growth Evaluation*, Vol. 3, No 4, pp. 270-277. <https://doi.org/10.54660/anfo.2022.3.4.13>
- Marinakos, Y., 2015. An improved particle swarm optimization algorithm for the capacitated location routing problem and for the location routing problem with stochastic demands. *Applied Soft Computing*, Vol. 37, pp. 680-701.
- Matsouka, K. and Mihail, D. M., 2016. Graduates' employability: What do graduates and employers think?. *Industry and Higher Education*, Vol. 30, No. 5, pp. 321-326.
- Melak, D. and Derbe, T., 2022. Analysis of determinants of youth self-employment career choices. *Journal of Small Business and Enterprise Development*, Vol. 29, No. 6, pp. 886-901.
- Nauffal, D. and Skulte-Ouais, J., 2018. Quality higher education drives employability in the Middle East. *Education+ Training*, Vol. 60, No. 9, pp. 1057-1069.
- Nilsson, S., 2010. Enhancing individual employability: the perspective of engineering graduates. *Education+ Training*, Vol. 52, No. 6/7, pp. 540-551.
- Omar, N. H. et al., 2012. Graduates' employability skills based on current job demand through electronic advertisement. *Asian Social Science*, Vol. 8, No. 9, 103.
- Oosthuizen, H. et al., 2021. Teamwork in the accounting curriculum: Stakeholder expectations, accounting students' value proposition, and instructors' guidance. *Accounting Education*, Vol. 30, No. 2, pp. 131-158.
- Paul, J. and Criado, A. R., 2020. The art of writing literature review: What do we know and what do we need to know? *International business review*, Vol. 29, No. 4, 101717.
- Pham, T. et al., 2018. Employability of international students: Strategies to enhance their experience on work-integrated learning (WIL) programs. *Journal of Teaching and Learning for Graduate Employability*, Vol. 9, No. 1, pp. 62-83.
- Potluri, R. M., Ansari, R., Khan, S. R., & Dasaraju, S. R. (2017). A crystallized exposition on Indian Muslims' attitude and consciousness towards halal. *Journal of Islamic Marketing*, Vol. 8, No. 1, pp. 35-47.
- Ritzhaupt, A. D. and Kumar, S., 2015. Knowledge and skills needed by instructional designers in higher education. *Performance Improvement Quarterly*, Vol. 28, No. 3, pp. 51-69.
- Rongmin, L. and Fah, B. C. Y., 2024. Rethinking Education and Training: Creating High-Quality Employment Opportunities for Vocational Students. *Advances in Vocational and Technical Education*, Vol. 6, No. 2, pp. 90-95.
- Sato, S. et al., 2021. Graduate employability and higher education's contributions to human resource development in sport business before and after COVID-19. *Journal of Hospitality, Leisure, Sport & Tourism Education*, Vol. 28, 100306.
- Singh, N. and Arora, S., 2023. Recognizing the legacy of the TQM Journal: a bibliometric analysis of Scopus indexed publications (2008-2021). *The TQM Journal*, Vol. 35, No. 4, pp. 946-963.
- Stefanidis, A. Et al., 2024. Twenty-five years of management research on poverty: A systematic review of the literature and a research agenda. *Business Ethics, the Environment & Responsibility*, Vol. 33, No. 1, pp. 14-39.

FROM LEARNING TO LEADING: HIGHER EDUCATION IN THE DIGITAL ERA

- Succi, C. and Wieandt, M., 2019. Walk the talk: soft skills' assessment of graduates. *European Journal of Management and Business Economics*, Vol. 28, No. 2, pp. 114-125.
- Succi, C., 2019. Are you ready to find a job? Ranking of a list of soft skills to enhance graduates' employability. *International Journal of Human Resources Development and Management*, Vol. 19, No. 3, pp. 281-297.
- Suleman, F. and Laranjeiro, A. M. C., 2018. The employability skills of graduates and employers' options in Portugal: An explorative study of anticipative and remedial strategies. *Education+ Training*, Vol. 60, No. 9, pp. 1097-1111.
- Van Eck, N. and Waltman, L., 2010. Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, Vol. 84, No. 2, pp. 523-538.
- Vázquez, Á. D. et al., 2019. Análisis bibliométrico del impacto de la investigación educativa en diversidad funcional y competencia digital: Web of Science y Scopus. *Aula abierta*, Vol. 48, No. 2, pp. 147-156.
- Wolcott, S. K. and Sargent, M. J., 2021. Critical thinking in accounting education: Status and call to action. *Journal of Accounting Education*, Vol. 56, 100731.
- Xu, J. et al., 2022. Hospitality and tourism higher education in the post-COVID era: Is it time to change? *Journal of Hospitality & Tourism Education*, Vol. 34, No 4, pp. 278-290.
- Zhang, Y. et al., 2017. Scientific evolutionary pathways: Identifying and visualizing relationships for scientific topics. *Journal of the Association for Information Science and Technology*, Vol. 68, No. 8, pp. 1925-1939.
- Zhao, Y. et al., 2021. Digital competence in higher education: Students' perception and personal factors. *Sustainability*, Vol. 13, No. 21, 12184.
- Zupic, I. and Čater, T., 2015. Bibliometric methods in management and organization. *Organizational research methods*, Vol. 18, No. 3, pp. 429-472.