Research trends in the development of generic skills

Diana Marleny Ramírez-Ramírez[1], Erica Agudelo-Ceballos[2], Jesus Alberto Jimenez Garcia[3], Alejandro Valencia-Arias[4]*, Sebastián Cardona-Acevedo[5], Jackeline Valencia[6] and Erick Ynoquio[7]

[1]Ciencias Económicas y Administrativas, Instituto Tecnológico Metropolitano, Medellín, Colombia, [2]Departamento de Ciencias Administrativas, Instituto Tecnológico Metropolitano, Medellín, Colombia, [3]Dirección de Planificación y Desarrollo Institucional, Universidad Señor de Sipán, Chiclayo, Peru, [4]Escuela de Ingeniería Industrial, Universidad Señor de Sipán, Chiclayo, Peru, [5]Facultad de Ciencias Económicas y Administrativas, Instituto Tecnológico Metropolitano, Medellín, Colombia, [6]Vicerrectoría de Investigación y Postgrado, Universidad de Los Lagos, Osorno, Chile, [7]Facultad de Ingeniería Informática y de Sistemas, Universidad Señor de Sipán, Chiclayo, Peru

Introduction: Generic skills, also known as soft skills, are transversal competencies essential for professional success, encompassing cognitive, social, and emotional abilities. Despite their relevance, leadership behaviors during the implementation of educational methodologies reveal gaps in understanding how to effectively develop these skills in specific sectors.

Methods: A bibliometric analysis was conducted following the PRISMA 2020 protocol to identify trends, key contributors, and thematic evolution in research on generic skills. The review synthesized publications from relevant databases, mapping authorship, institutional contributions, and conceptual clusters.

Results: The analysis indicated a notable growth in research output during 2021 and 2022. Key references included Chan, the journal *Studies in Higher Education*, and contributions from Australia and the United Kingdom. The thematic focus evolved from "Transferable Skills" toward "Higher Education" and "Engineering Education," with conceptual clusters such as "General Education," "Higher Education," and "Gamification." Emerging terms like "employability" and "leadership" were identified as central to the discourse.

Discussion: Findings highlight the increasing scholarly attention to soft skills in educational contexts, yet also reveal the persistent need to integrate these competencies systematically into teaching and leadership practices. Based on the observed thematic trends, a research agenda is proposed that emphasizes the incorporation of innovative methodologies and emerging technologies to strengthen soft skills development across diverse sectors.

KEYWORDS

soft skills, PRISMA 2020, collaborative learning, crosscutting competencies, leadership

1 Introduction

Contemporary educational research demonstrates a pronounced interest in the cultivation of generic skills, with a particular emphasis on equipping individuals with the requisite competencies to navigate the complexities of a dynamic work environment (Grijalvo et al., 2022). These skills, also referred to as transversal competencies or soft skills, encompass cognitive, social, and emotional aptitudes that transcend specific disciplines, thereby contributing to professional success.

A number of studies have been conducted which shed light on the relationship between education and the development of generic skills. These contributions have explored the

connection between music education and the development of generic skills in music professionals (López-Íñiguez and Bennett, 2020). Furthermore, the learning of generic skills in higher education and its alignment with the demands of the labor market have also been examined (Lohberger and Braun, 2022). Furthermore, the development of employability skills within degree programs has been the subject of investigation, with particular emphasis placed on the distinctive nature of liberal arts education in this process (Kovačević et al., 2024).

Subsequent research has demonstrated the value of diverse educational contexts in strengthening generic skills. Furthermore, it has examined the capacity of gamification strategies including computer-based business games, reward systems, levels, and challenges to facilitate the development of such competencies within the context of higher education (Grijalvo et al., 2022). This comprehensive viewpoint underscores the notion that the concept of gamification extends beyond the realm of digital games, encompassing a diverse array of pedagogical instruments meticulously designed to augment student engagement and optimize learning outcomes. This approach is known as gamification. It provides a learning framework that promotes competencies such as problem solving and teamwork. Similarly, the study of athletes who have been deselected from the talent development pathway offers a distinctive perspective on resilience and adaptation, which are essential skills in any professional field (Lohberger and Braun, 2022).

The development of generic skills in contemporary education is of paramount importance, as these skills are fundamental to preparing individuals to meet the challenges of society and the labor market. The acquisition of practical skills through collaborative learning is exemplified by the exploration of interactive computer science courses that encourage hands-on experience and teamwork (Danielewicz-Betz and Kawaguchi, 2014). The necessity for the observation of generic skill development is exemplified by Groen et al. (2020) proposal for enhancements to a self-assessment instrument designed to monitor the progression of these skills within an active learning context. These investigations underscore the significance of integrating pedagogical strategies that not only facilitate the acquisition of disciplinary knowledge but also foster the comprehensive development of skills that enhance adaptability and professional effectiveness in diverse contexts.

It is therefore evident from the literature reviewed that the development of generic skills represents an essential dimension of contemporary educational training. In the context of the Fourth Industrial Revolution, equipping graduates with the requisite soft employability skills to meet the demands of the labor market is of paramount importance. Such skills are essential for navigating the evolving demands of the contemporary professional landscape. It is imperative that these skills be integrated into the educational curriculum to ensure that graduates possess not only technical knowledge but also the ability to adapt and thrive in a dynamic labor market (Teng et al., 2019).

Similarly, the promotion of employability through the fostering of entrepreneurial skills in higher education has been the subject of study. These skills are of paramount importance for job readiness, emphasizing that education should focus not only on theory, but also on the practice of skills that drive entrepreneurship and innovation. These aspects complement traditional academic training, providing students with the necessary tools for a successful transition to the world of work (Pardo-Garcia and Barac, 2020).

Despite the considerable progress made in the field of generic skills research, significant gaps in knowledge persist, necessitating further investigation to inform future research and enhance the theoretical and applied understanding of this phenomenon. A review of the literature reveals a paucity of attention paid to the specific identification and assessment of key soft skills that affect orientation and their direct connection to the level of employability (Rodriguez Martinez et al., 2021). This study emphasizes the significance of soft skills in the context of job placement, yet research in this domain remains scarce. Moreover, there is a dearth of research exploring innovative pedagogical approaches and effective assessment tools for teaching and evaluating these skills in educational and work contexts.

The necessity for an investigation into the behaviors exhibited by leaders when implementing methodologies such as lean healthcare has been highlighted, indicating a deficit in comprehension regarding the manner in which soft skills are developed and deployed in specific sectors over time (Tortorella et al., 2020). Despite the expansion of literature on soft skills, it remains constrained in terms of focus, with minimal attention directed toward the nexus of these skills with diverse disciplines and work contexts (Touloumakos, 2020). The aim of this research is to examine the existing literature on the development of generic skills. In light of the above, the following research questions are also posed:

- Which are the years in which the most interest has been presented on the development of generic skills?
- What type of growth does the number of scientific articles on the development of generic skills show?
- What are the main research references on the development of generic skills?
- What is the thematic evolution derived from the scientific production on the development of generic skills?
- What are the main thematic clusters on the development of generic skills?
- What are the growing and emerging keywords in the field of research on the development of generic skills?
- How are the keywords of the scientific literature on generic skills development classified according to their function?
- Which themes are positioned as protagonists for the design of a research agenda on generic skills development?

This article is structured in six sections, comprising the abstract, introduction, methodology, results, discussions and conclusions. It begins with the abstract, which provides an overview of the study; the introduction presents the context and objectives of the research; the methodology describes the techniques used. The data was collected and analysed using a variety of techniques. The results section presents the key findings of the study, while the discussion interprets these findings in the context of the existing literature. Finally, the conclusions summarize the main points of the study and propose directions for future research.

2 Methodology

The present research is an exploratory study based on secondary research sources. A bibliometric analysis was conducted in accordance with the parameters established in the PRISMA-2020 declaration. The PRISMA-2020 declaration provides updated guidelines for the preparation of systematic reviews, which is essential to guarantee the quality and accuracy of the analysis (Page et al., 2021). This allows for a systematic evaluation of the existing literature on the development of generic skills, ensuring transparency and recurrence of the results.

2.1 Eligibility criteria

In order to ensure the inclusion of the most relevant literature, the titles, keywords and various concepts associated with the subject were taken into account. This approach allowed for the selection of records covering a broad spectrum of scientific literature relevant to the advancement of generic skills. To ensure greater precision in the selection process, several associated concepts were also considered. These included terms related to "professional competencies," "21st-century skills," "key skills," "life skills," "core competencies," and "graduate attributes." The inclusion or exclusion of articles was guided by the relevance of these concepts to the scope of generic skills development as defined in the research objectives.

The exclusion process was conducted in three phases, with specific criteria employed to ensure the quality and validity of the data analysed. In the initial phase, all records with erroneous indexing are excluded, thus ensuring the accuracy of the identification of pertinent literature. In the second exclusion phase, which was applied exclusively to systematic literature reviews, any documents that were inaccessible in their full version were eliminated. It is important to note that bibliometrics is a field of study that focuses on the analysis of metadata, which is descriptive information that does not allow for access to the comprehensive content of the texts in question. The third exclusion phase eliminates texts with incomplete indexing, conference proceedings and documents of little relevance. This process ensures the integrity and reliability of the data analysed in the context of research on the development of generic skills.

During the exclusion process, the titles, abstracts, and keywords of the identified documents were evaluated without accessing the full text, as bibliometric analysis is based on metadata and does not require the full content of the texts. This methodological decision was made to ensure consistency with the study's objectives and to facilitate the reproducibility of the selection process. Following the implementation of the inclusion and exclusion criteria, a content-based classification of the selected documents was performed. Titles, abstracts, and keywords were reviewed to identify the methodological approach employed in each study.

2.2 Information sources

The Scopus and Web of Science databases were selected on the basis of their preeminent status as primary sources of scientific and academic data. These platforms are renowned for their comprehensive scope and interdisciplinary coverage, which are vital for addressing the multifaceted approaches and perspectives associated with the advancement of generic skills. The choice of these databases is supported by research that evaluates the coverage of scientific journals in Web of Science and Scopus. The study corroborates the assertion that Web of Science and Scopus are especially pertinent for the identification of scientific literature (Singh et al., 2021).

2.3 Search strategy

In order to conduct an adequate and precise search in the Scopus and Web of Science databases within the context of bibliometrics on the development of generic skills, two specialized search equations were developed. These were created in accordance with the previously established inclusion criteria and adapted to align with the distinctive characteristics and specific search structures of each database.

For the Scopus database: (TITLE ("Generic skills" OR "Transferable skills" OR "Soft skills" OR "Employability skills") AND TITLE ("Development" OR "Enhancement" OR "Acquisition" OR "Cultivation")) OR (KEY ("Generic skills" OR "Transferable skills" OR "Soft skills" OR "Employability skills") AND KEY ("Development" OR "Enhancement" OR "Acquisition "OR "Cultivation")).

For the Web of Science database: (TI = ("Generic skills" OR "Transferable skills" OR "Soft skills" OR "Employability skills") AND TI = ("Development" OR "Enhancement" OR "Acquisition" OR "Cultivation")) OR (AK = ("Generic skills" OR "Transferable skills" OR "Soft skills" OR "Employability skills") AND AK = ("Development" OR "Enhancement" OR "Acquisition" OR "Cultivation")).

The search was restricted to the period between 1995 and 2023, in order to capture the historical development and current trends in the literature. This timeframe was selected to ensure the inclusion of early conceptualizations as well as recent scholarly contributions.

2.4 Data management

The Microsoft Excel® application was employed for the extraction, storage and efficient processing of the information gathered from each of the selected databases. Subsequently, the free software VOSviewer® was employed for the visualization and analysis of the co-authorship network, which is recognized for its effectiveness in representing relationships between scientific terms and exploring the structure of the academic collaboration network (Orduña-Malea and Costas, 2021). The data was imported into VOSviewer in .csv format, and the analysis was conducted by selecting the co-authorship type and unit of analysis (authors, countries, or organizations). The establishment of thresholds was predicated on the minimum number of documents and citations per item. Subsequently, a process of clustering and layout optimization was initiated to visualize the most significant collaboration patterns. Additionally, Microsoft Excel® was utilized for the generation of graphs representing various bibliometric indicators derived from the analysis of the scientific literature on the development of generic skills.

2.5 Selection process

In accordance with the PRISMA 2020 guidelines, it is imperative to ensure transparency in the utilization of internal automatic classifiers throughout the selection process. Furthermore, these classifiers must be validated internally or externally to ascertain the potential for missing studies or erroneous classifications (Page et al., 2021). In this bibliometric study on generic skills development, an internal automation tool was implemented in Microsoft Excel®. The tool was developed collectively by all members of the research team and subsequently applied independently by each team member during the application of the inclusion and exclusion criteria.

An initial identification phase was conducted using a search strategy in each selected information source, followed by the elimination of duplicate records. Subsequently, three exclusion phases were applied in order to refine the results. Ultimately, 425 articles that satisfied the established criteria were included, forming the basis of the analysis in this research.

3 Results

This section is organized in a clear and logical manner, displaying the most pertinent results, including tables and graphs that illustrate the trends and discrepancies observed, thus facilitating the visual comprehension of the information. Each result is succinctly delineated, emphasizing its significance and elucidating its contribution to the resolution of the research questions posed.

As illustrated in Figure 1, the PRISMA flow diagram delineates the selection process for the documents incorporated into the review. A total of 1,089 records were initially identified, 864 of which were retrieved from Scopus and 225 from Web of Science. Following the removal of 188 duplicates, a total of 901 records were subjected to a screening process based on their titles, abstracts, and keywords. At this stage, no records were excluded, and all 901 were sought for retrieval. In the subsequent phase of eligibility assessment, 476 reports were excluded from consideration. The initial total of 125 was due to

incomplete indexing. The subsequent total of 296 was due to the papers being conference papers. The final total of 55 was due to the papers being unrelated to the topic. Consequently, 425 studies satisfied the inclusion criteria and were retained for the final analysis. This process ensured methodological rigor and transparency in the selection of relevant scientific literature on the development of generic skills.

Figure 2 illustrates an exponential growth in scientific production, with an increase of 98.3% between the years 2019 and 2023. This increase is particularly notable in the years 2022, 2023 and 2021, which saw the highest number of publications on the subject, indicating a growing significance and attention accorded to this field of study in recent academic literature. Consequently, it is evident that the years 2021–2023 represent the period of greatest scholarly interest in the development of generic skills. The data demonstrate a marked exponential growth trend in the number of publications on the topic.

In terms of the most prolific authors, Figure 3 illustrates three distinct groups. The first comprises the most prominent authors in terms of both
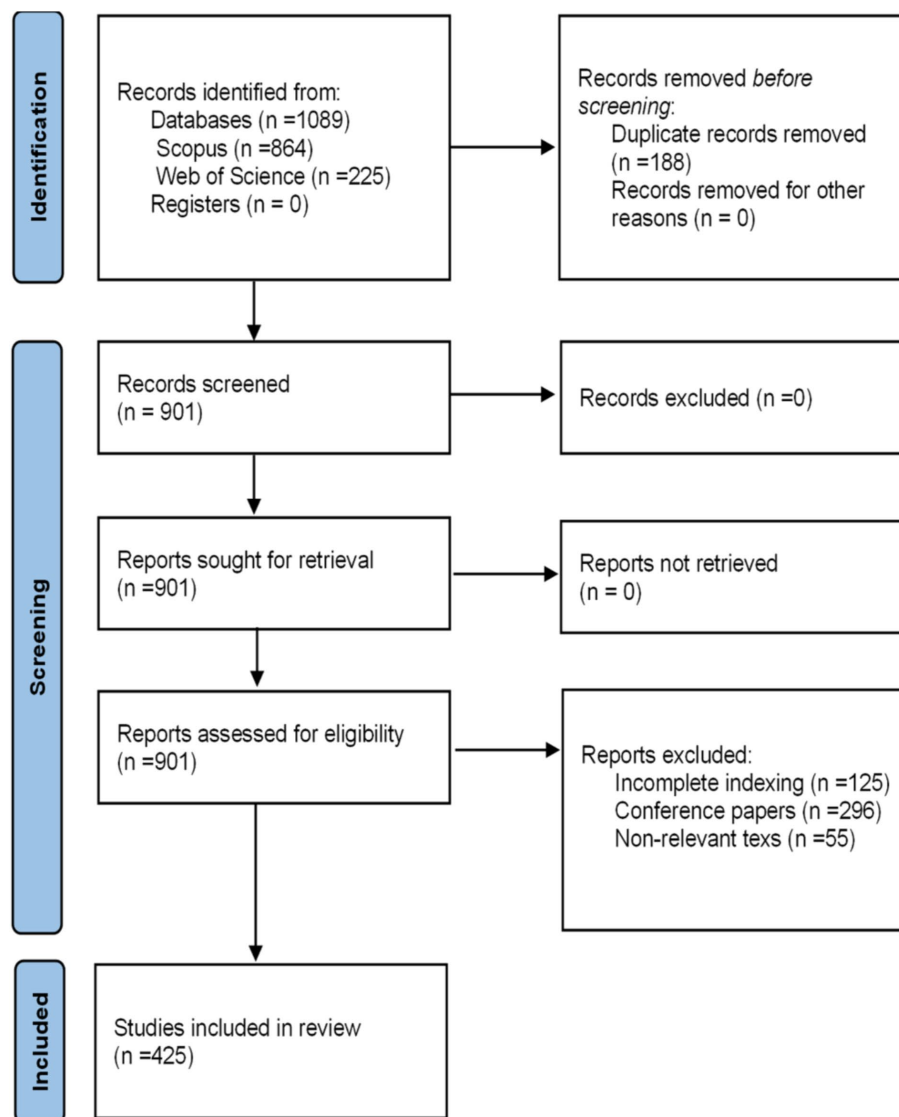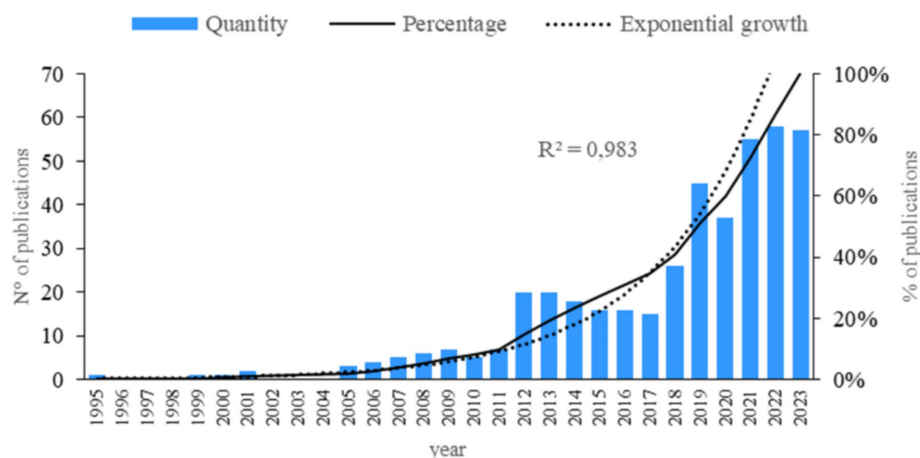

FIGURE 1
PRISMA-2020 flowchart.

FIGURE 2
Publications by year. Own elaboration based on Scopus and Web of Science.
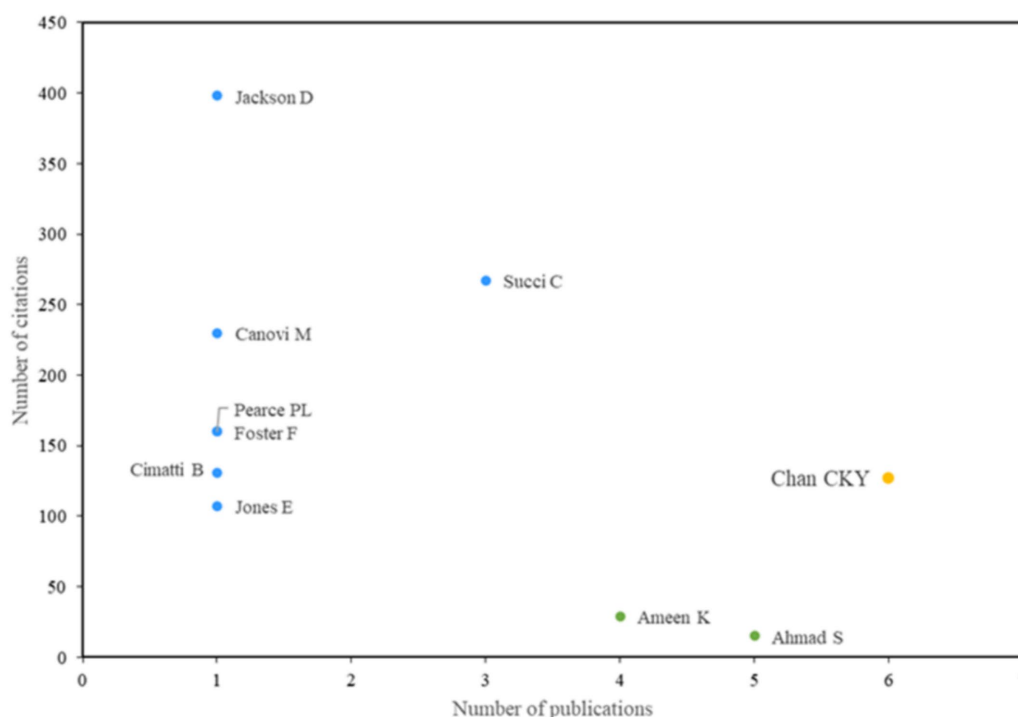

FIGURE 3
Main authors. Own elaboration based on Scopus and Web of Science.

productivity and impact, including Chan CKY. The second group is distinguished by its high impact despite having a relatively low scientific productivity index. The third group of authors is distinguished by their high scientific productivity, although not necessarily by their number of citations. Ahmad S. is the most prominent author in this category, having published five articles. The findings presented herein facilitate the identification of seminal individual research references that have exerted a substantial influence on the academic discourse concerning generic skills.

In terms of the most relevant journals, three distinct groups were identified, as illustrated in Figure 4. The first group comprises the most prominent journals in terms of both productivity and impact, including Studies in Higher Education and Education and Training. The second group is positioned as a reference in In terms of impact, despite having a low index of scientific productivity, journals such as Tourism Management and Higher Education are included. Conversely, the last group of journals is characterized by

FIGURE 4
Main journals. Own elaboration based on Scopus and Web of Science.
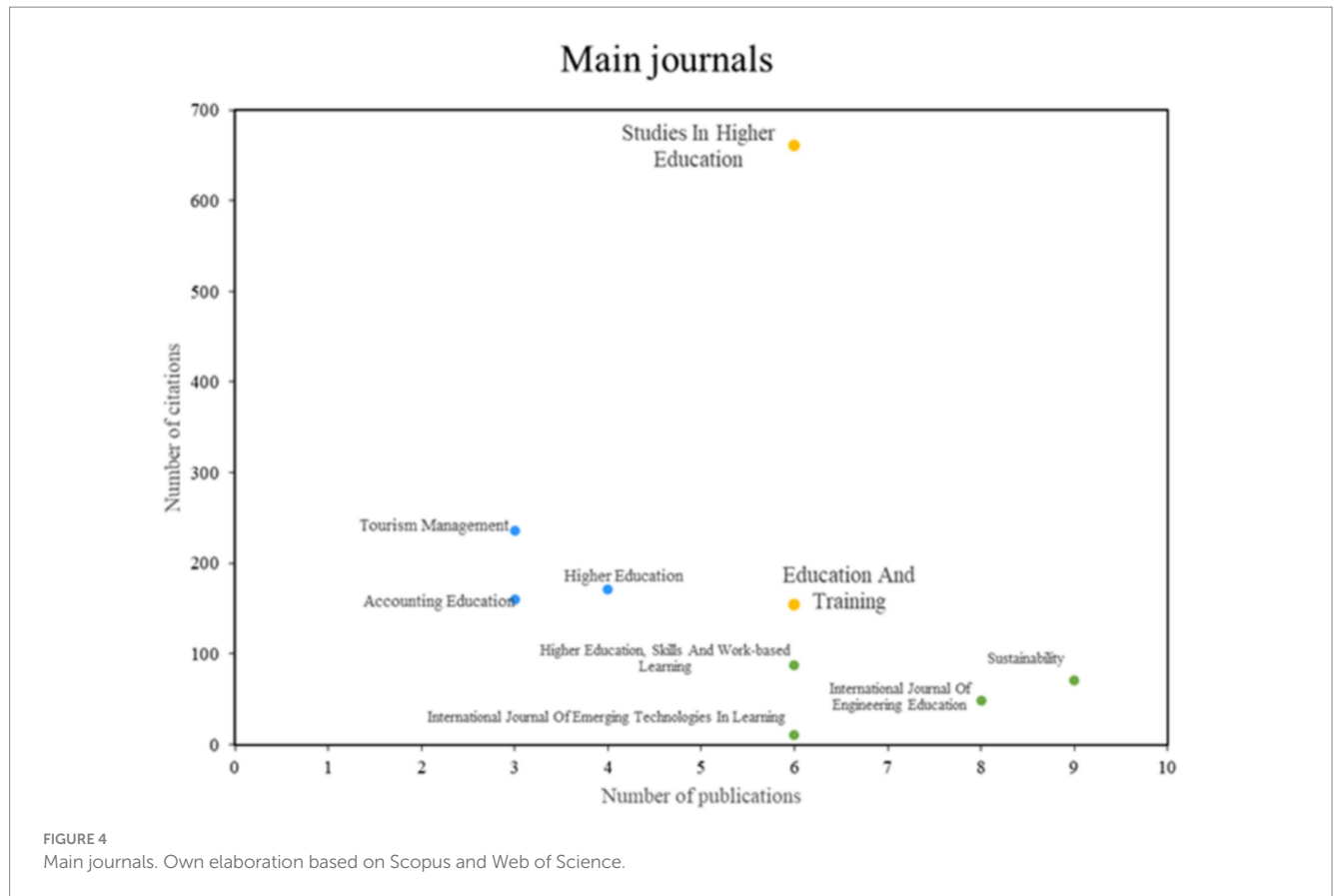
high scientific productivity, although not necessarily by their number of citations, with Sustainability standing out. These journals function as pivotal publication venues and constitute foundational institutional references within the field.

The principal countries were classified into three distinct groups, as illustrated in Figure 5. The initial group encompasses the most prominent countries in terms of both productivity and impact, including Australia, the United Kingdom, the United States, and Malaysia. The second group is characterized by a relatively low index of scientific productivity; however, Italy serves as a noteworthy reference in terms of impact. The final group of countries is distinguished by its high scientific productivity, although not necessarily by its number of citations. Spain, in particular, has made a significant impact in this field, with approximately 20 publications. These countries function as geographic reference points for the scientific production and diffusion of knowledge related to generic skills.

Figure 6 illustrates the evolution of themes in the literature on the development of generic skills, based on the most frequently used keywords in each year of research between 1995 and 2023. In the initial year of the study, 1995, the emergence of the concept of "transferable skills" is particularly noteworthy. Conversely, recent years have seen a proliferation of topics such as "Higher Education," "Engineering Education," "Professional Training" and "Transferable Skills," which point to emerging research trends. This thematic progression illustrates how the field has evolved from foundational concepts toward more applied and interdisciplinary approaches in recent years.

The primary network of keyword co-occurrence is presented in Figure 7, which depicts seven thematic clusters. The most prominent cluster is the yellow one, which is composed of terms such as "Generic Education," "Higher Education," "Gamification," "E-Learning" and "Curriculum Development." It is followed by the green cluster, which includes terms such as "Personal Development," "Education," "Teaching," "Engineering," "Professional Skills" and "Development." Furthermore, additional clusters are identified in purple, red, orange and blue, which reflect disparate elements of conceptual affinity in research on the development of generic skills. The thematic clusters described herein reflect the diverse and multidimensional nature of research on generic skills. These areas include, but are not limited to, curriculum innovation, personal development, engineering education, and professional training.

A Cartesian plane is proposed whereby the frequency of use of keywords is measured on the X axis and the validity of use on the Y axis. This allows the observation of four different quadrants, as illustrated in Figure 8. This facilitates the identification and categorization of concepts in terms of their popularity and temporal relevance. The fourth quadrant is reserved for declining concepts, that is to say, those that have decreased in use and relevance over time.

In quadrant 2, words that are infrequent but highly current are considered to be emerging. Examples of these emerging keywords include "Professional Development," "Entrepreneurship," "Leadership," "Hard Skills" and "Sustainability." In contrast, consolidated and growing concepts, such as "Higher Education," "Employability" and "Generic Skills," are situated in quadrant 1, reflecting their high frequency of use and continued relevance in the extant literature on

FIGURE 5
Main countries. Own elaboration based on Scopus and Web of Science.
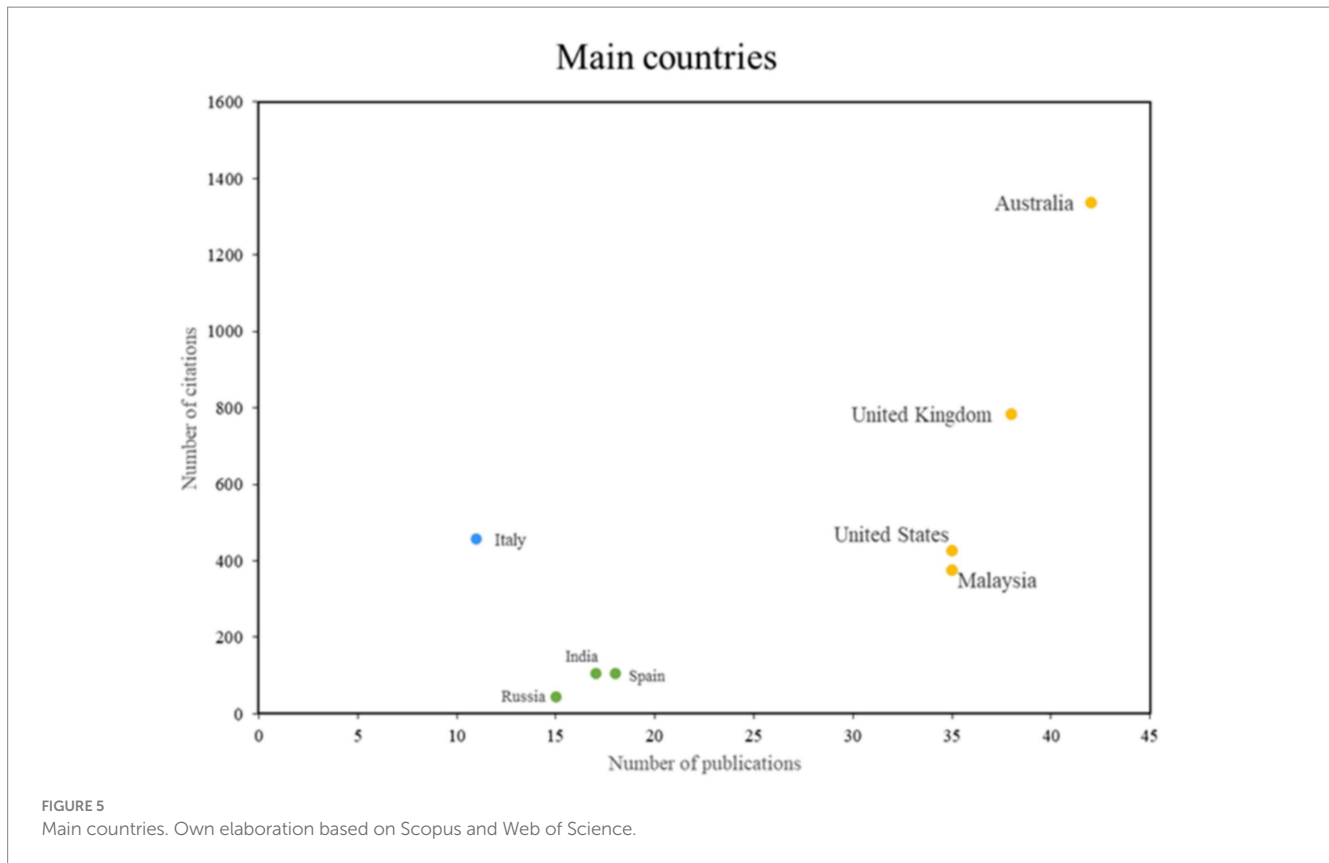
generic skills development. Therefore, the growing and emerging concepts within this research field are clearly distinguished and visualized in the thematic mapping presented in Figure 8.

4 Discussion

This section presents a comprehensive analysis of the research findings, elucidating their practical implications and limitations. It also offers a classification of keywords according to their function, identifies the main research gaps, and proposes a research agenda for future studies.

4.1 Analysis of results

The development of generic skills has experienced a significant increase in research output, particularly between 2021 and 2023. Studies from 2022 and 2023 have further expanded our understanding of how these skills can be cultivated in various contexts, including family tourism and higher education. In 2022, Miyakawa and Oguchi's study explored how family tourism experiences correlate with the development of skills such as communication and problem-solving in children (Miyakawa and Oguchi, 2022).

The following year, Bhatti et al. (2023) focused on the employability skills of business graduates, stressing the importance of employing effective teaching strategies to prepare graduates for the labor market. Meanwhile, Chan and Lee (2021) analyzed how engineering education in Hong Kong aligns teaching methods with

the development of both technical and generic competencies. These trends are confirmed by the results of the bibliometric analysis, which revealed a 98.3% growth in scientific output between 2019 and 2023, evidencing a notable intensification of academic interest in the topic. The analysis also identifies 2022 and 2023 as the years with the highest number of publications, highlighting the growing importance of generic skills in diverse educational settings (Table 1).

A number of scholars have contributed valuable insights into the development of generic skills across diverse fields. Chan's work on engineering students' perceptions of generic competencies has proven crucial in understanding how these skills are perceived and assessed within specific educational contexts (Danielewicz-Betz and Kawaguchi, 2014). Jackson (2015) has further contributed to this by identifying barriers to the development of employability skills and proposing strategies for overcoming them. Succi and Canovi (2020) highlighted discrepancies in the perceptions of necessary skills between students and employers, offering guidelines for improving educational alignment with labor market needs. The co-occurrence analysis reinforces the prominence of engineering education, employability, and skills perception as core research themes. These keywords clustered consistently in high-frequency groupings, reflecting their sustained academic relevance and the convergence between student experiences and labor market demands (Figure 9).

Ahmad's study on the acquisition of soft skills among university information professionals in Pakistan emphasizes the context-specific development of generic competencies (AbuJbara and Worley, 2018). Research from journals like Studies in Higher Education and Education and Training has also shed light on the influence of student identity and belonging on employability skills (Griffiths et al., 2018)
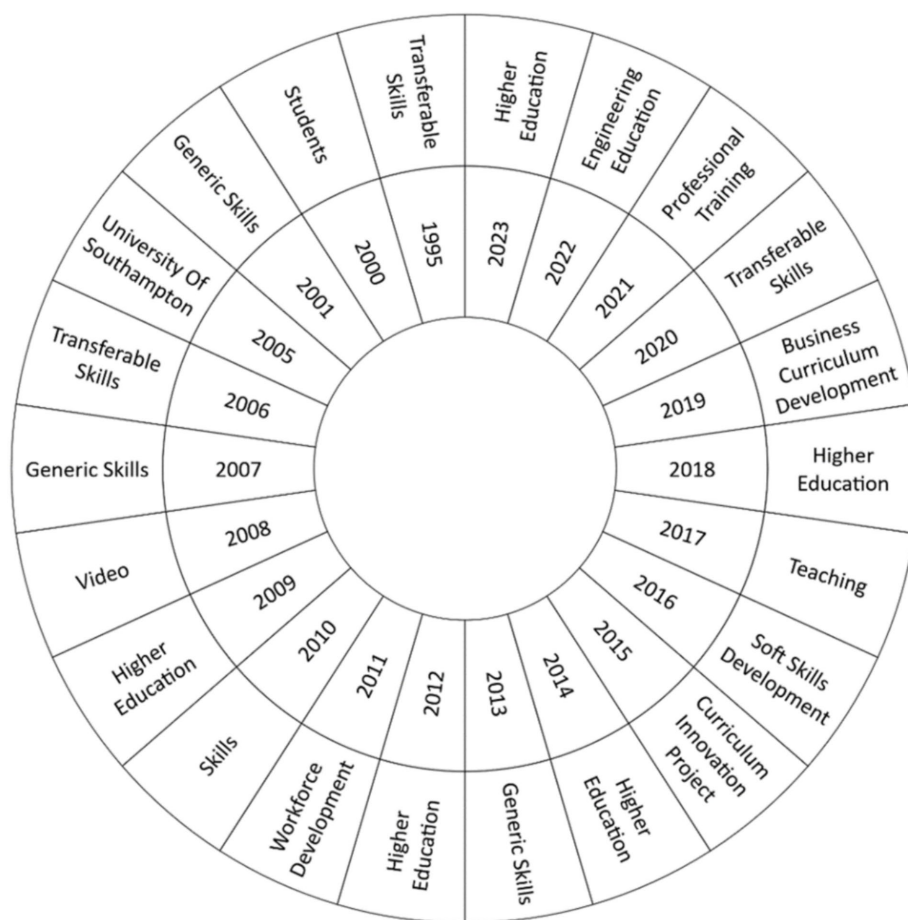
FIGURE 6
Thematic evolution. Own elaboration based on Scopus and Web of Science.

and the impact of the Fourth Industrial Revolution on graduate preparedness (Teng et al., 2019). The bibliometric analysis confirms the importance of contextual and structural factors, with emerging keywords such as "Fourth Industrial Revolution," "Student Identity," and "Professional Preparedness" indicating a shift toward research addressing technological disruption and inclusive education models.

Internationally, countries such as Australia, the UK, the US, and Malaysia have been pivotal in advancing research in this area. Australian studies have examined the role of travel experiences in developing generic skills (Scarinci and Pearce, 2012), while UK-based research has explored how intercultural experiences enhance employability (Jones, 2013). In the US, research in accounting education highlighted the importance of combining soft skills with technical expertise (Rebele and Pierre, 2019). Meanwhile, Malaysia has contributed to understanding the role of soft skills in dental education (Gonzalez et al., 2013). Other studies have investigated how countries like Italy and Spain approach the integration of soft skills into professional training (Rodriguez Martinez et al., 2021). The country-level analysis classifies the main contributors into three categories: (1) those with high productivity and impact (Australia, UK, US, Malaysia), (2) countries like Italy with lower productivity but high citation impact, and (3) those with substantial productivity but lower citation rates, such as Spain. This differentiation underscores both

the volume and influence dimensions of global contributions. The development of generic skills has been shaped by influential authors, high-impact journals, and leading countries that constitute the core scientific references supporting further exploration in this area.

The thematic evolution of research on generic skills reveals an expansion of focus beyond transferable skills, with early research highlighting the importance of student-community collaborations in fostering competencies adaptable to various professions (Buckingham-Hatfield, 1995). Later studies, such as those examining professional internships (Franco-Ángel et al., 2023) and engineering education (Gupta and Gupta, 2023), have further explored the integration of soft and technical skills. These studies reflect a broadening scope, encompassing diverse fields like public administration and music education (López-Íñiguez and Bennett, 2020). The thematic timeline developed in the analysis reveals a chronological shift from basic skill identification (1995–2005) toward integration into pedagogical models and cross-sectoral applications in recent years. This confirms an increasing complexity and interdisciplinary adoption of generic skills frameworks.

The analysis of thematic clusters around generic skills development has identified key intersections in the research. A prominent cluster, indicated by keywords like "Higher Education," "Gamification," and "E-Learning," emphasizes the role of technological
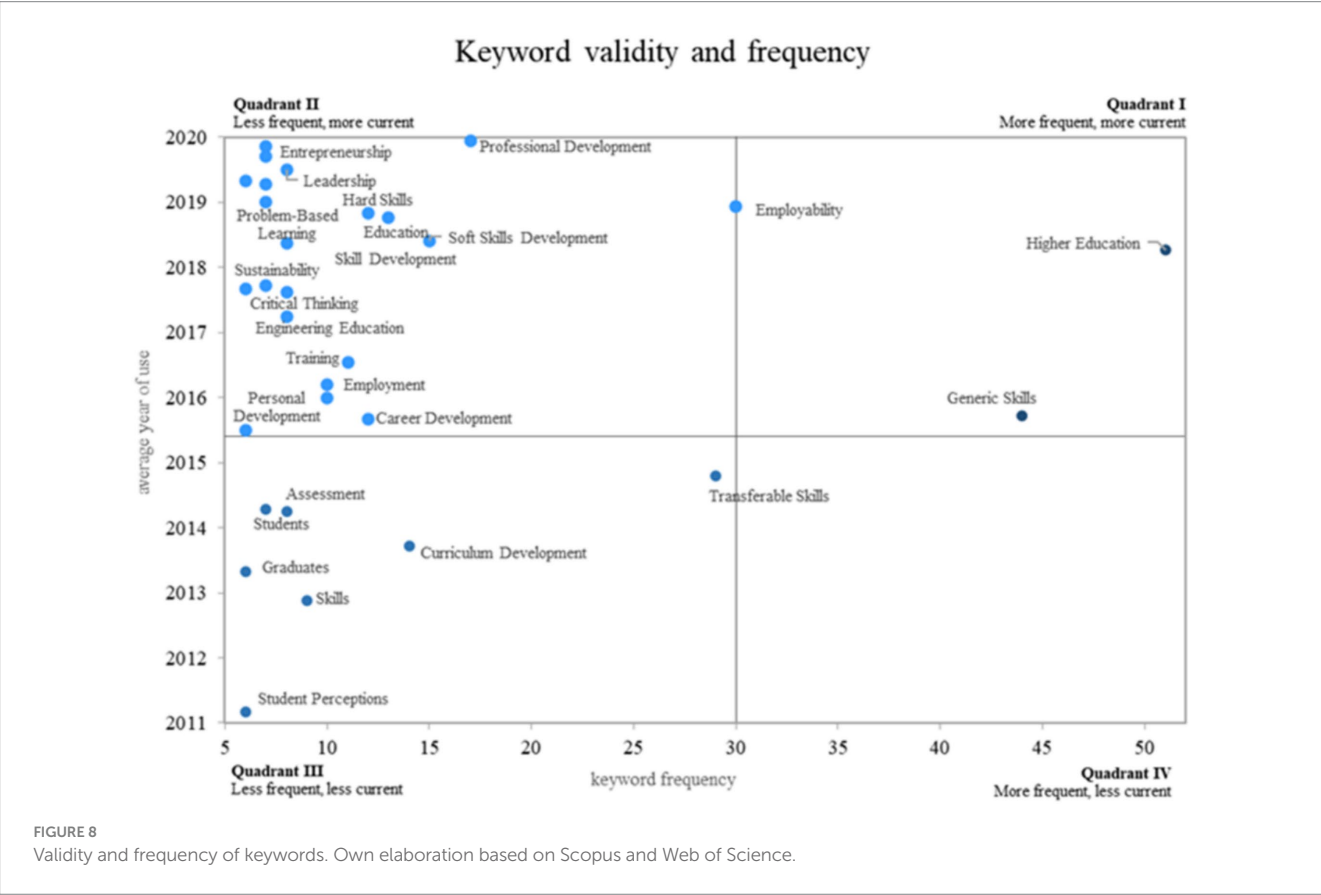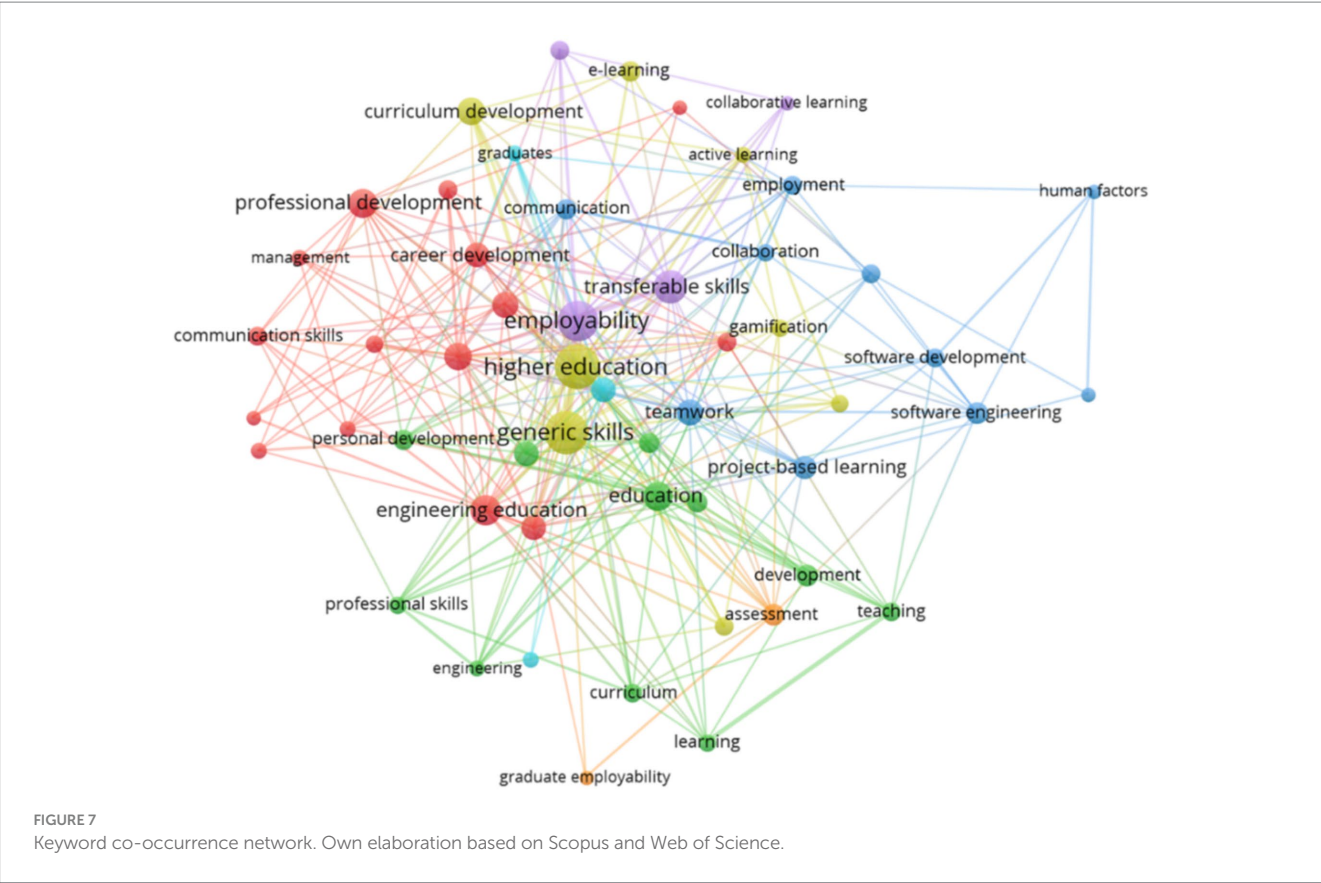
FIGURE 7
Keyword co-occurrence network. Own elaboration based on Scopus and Web of Science.

FIGURE 8
Validity and frequency of keywords. Own elaboration based on Scopus and Web of Science.

TABLE 1 Classification of selected studies by methodological approach.

Type of methodology	Estimated number of studies	Approximate percentage
Quantitative	265	62%
Qualitative	98	23%
Mixed Methods	62	15%
Total	425	100%

Own elaboration.

innovations in the curriculum, such as gamification and e-learning, in promoting generic skill development.

Keneley and Jackling (2014) have explored the challenges posed by culturally diverse student cohorts in acquiring these skills, while Wautelet et al. (2012) have examined how online games in engineering education enhance specific competencies. A second significant cluster highlights the importance of personal and professional development, with studies focusing on the perceptions of engineering and business students regarding employability skills (Fletcher et al., 2017; Bratianu and Vatamanescu, 2017). Cluster analysis using VOSviewer identified
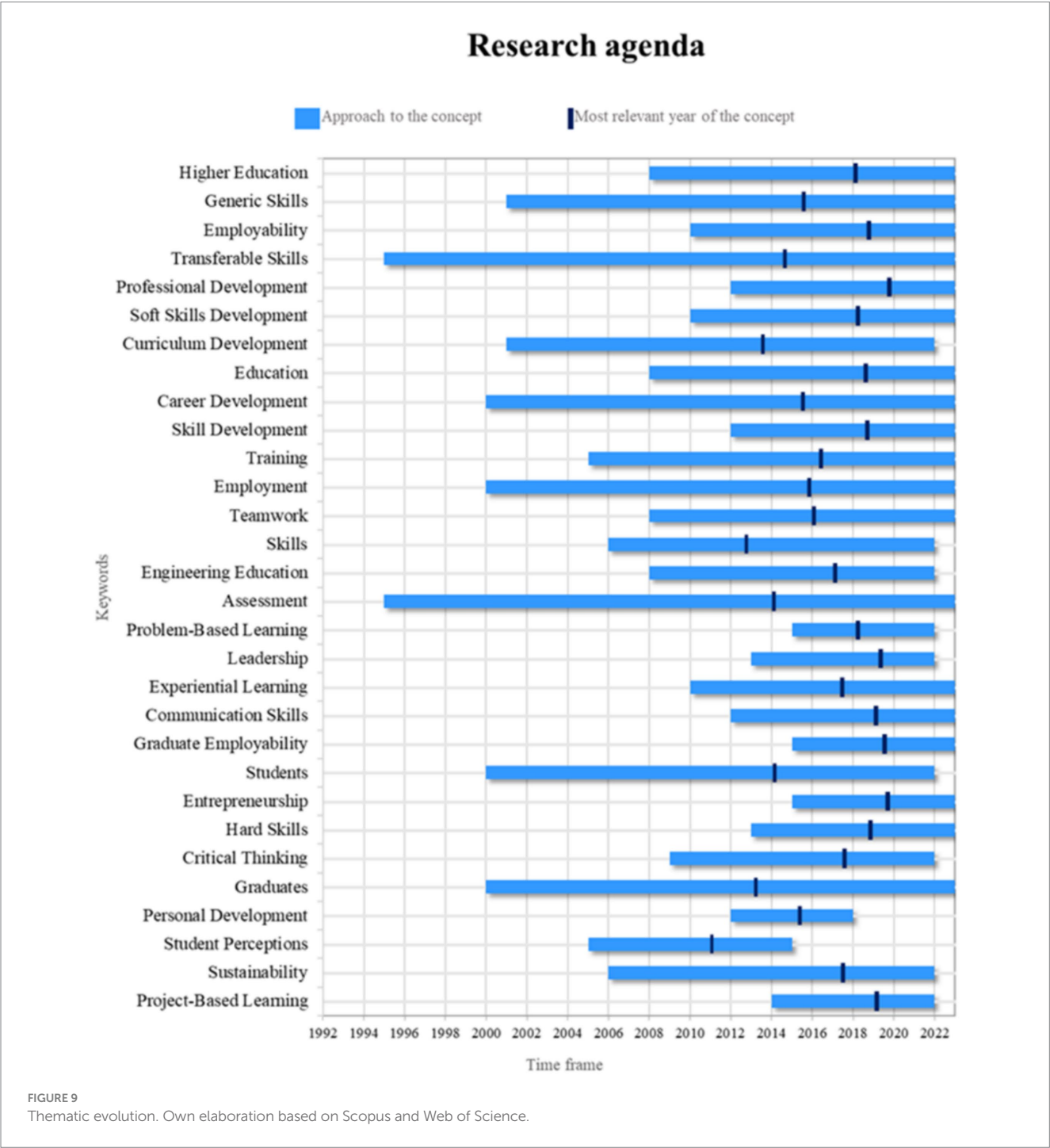

FIGURE 9
Thematic evolution. Own elaboration based on Scopus and Web of Science.

TABLE 2 Classification of keywords according to their function.

Keyword	Associated tools	Applications	Characteristics
Professional Development	Mentoring, coaching, workshops	Improved job performance	Promotes professional growth
Entrepreneurship	Business planning, risk management	Promotion of business innovation	Business skills development
Leadership	Team building, decision making	Effective team management	Boosts leadership and motivation
Hard Skills	Technical training, certifications	Specific technical skills	Improve professional specialization
Sustainability	Environmental impact assessment, green technologies	Implementation of sustainable practices	Promotes environmental responsibility
Higher Education	Curriculum design, assessment tools	Improving educational quality	Advanced academic preparation
Employability	Internships, career fairs	Improving job opportunities	Increase employability skills
Generic skills	Communication, critical thinking	Development of transferable skills	Applicable in various work contexts

Own elaboration based on Scopus and Web of Science.

seven major thematic groupings, of which the largest incorporates educational innovation (e.g., gamification, e-learning) and curriculum development. This confirms a substantial focus on digital pedagogies and their capacity to support skill formation in modern educational environments.

The frequency and conceptual validity analysis further underscore the rising importance of professional development, entrepreneurship, and leadership in the context of generic skills. Berven et al. (2020) emphasize the importance of continuous professional development for extension agents, while studies on entrepreneurship stress the integration of entrepreneurial skills in higher education (Dinning, 2017).

Leadership also emerges as a critical competence for navigating organizational change, with AbuJbara and Worley (2018) highlighting its role in leadership development. Research in quadrant 1 of the Cartesian plane corroborates the centrality of higher education in fostering generic skills, with studies emphasizing the need for graduates to acquire both technical and transferable skills to succeed in the global job market (Andrews and Russell, 2012). Additionally, the study by Webb and Chaffer (2016) on accounting programs reinforces the importance of transversal skills, such as communication and critical thinking, in academic and professional success. In the conceptual quadrant analysis, topics like entrepreneurship, leadership, and professional development occupy Quadrant 2, identifying them as emergent but consolidating areas. In contrast, "Higher Education" and "Employability" dominate Quadrant 1, reflecting their established prominence and current growth momentum.

Through these various studies, we observe an ongoing shift in the way generic skills are understood and integrated into both educational curricula and professional training, pointing to a future where these competencies are seen as crucial for success in an increasingly dynamic and globalized labor market.

While the primary objective of this bibliometric study was to explore publication patterns, thematic evolution, and co-occurrence trends, a supplementary classification by methodological approach was conducted. A subsequent manual review of titles, abstracts, and keywords was conducted, resulting in the categorization of the studies into three overarching groupings: quantitative, qualitative, and mixed methods approaches. The majority of the articles employed quantitative methodologies, followed by qualitative designs and, to a lesser extent, mixed methods.

4.2 Classification of keywords on the development of generic skills according to their function

Table 2 presents a classification of the principal emerging and growing keywords according to their specific function within this field of study. This classification enables the identification and comprehension of the distinctive characteristics and applications associated with each of these categorized functions. Consequently, this section directly addresses the research question concerning how keywords in the scientific literature on generic skills development are classified according to their function.

This organization provides a forum for the exploration and analysis of current and emerging trends in generic skills research, offering a comprehensive overview of how these keywords are being investigated and applied in diverse educational and professional contexts. By distinguishing keywords by their function such as pedagogical strategies, assessment methods, policy influences, and employability factors the classification offers a structured foundation for further academic inquiry in the field.

4.3 Theoretical implications

The analysis of publication frequency shows sustained interest and emerging trends, reflecting shifts in research priorities influenced by external factors. Key theoretical references from bibliometrics provide a framework for understanding generic skills from various disciplinary perspectives, enhancing knowledge in educational and work contexts. Thematic evolution reveals a shift from transferable skills to topics like higher education, vocational training, and sustainability, reflecting labor market needs. Co-occurrence analysis highlights interrelations between different aspects of generic skills. Emerging keywords suggest potential future research areas, offering a strategic framework for researchers and practitioners to inform educational and professional development policies.

4.4 Practical implications

The shift in research focus from transferable skills to broader aspects like higher education, engineering education, and vocational

TABLE 3 Identified research gaps in generic skills development: a comprehensive analysis.

Category	Identified gaps	Justification	Questions for future researchers
Thematic gaps	1. Lack of longitudinal studies 2. Integration of new technologies and methodologies 3. Inclusive studies.	Most studies are cross-sectional and do not consider the evolution of skills over time. There is little empirical evidence on the effectiveness of new technologies Cultural and contextual diversity is not sufficiently explored.	How do generic skills evolve over time? What is the impact of new technologies on skills development? How do cultural differences affect skill development?
Geographic gaps	1. Prevalence in developed countries. Lack of comparative studies. 3. Little exploration in varied contexts.	Research focuses largely on developed country contexts, which limits global understanding. Lack of comparison limits the understanding of regional variations. Diverse contexts need to be explored for complete understanding.	How are generic skills developed in different socioeconomic contexts? What differences exist in skill development between regions? How are generic skills applied in developing countries?
Interdisciplinary gaps	1. Transfer between disciplines. 2. Combination of approaches. 3. Integration with other fields.	The research is fragmented by disciplines and does not consider the transferability of skills. A more holistic view is needed that combines multiple approaches. Integration with fields such as psychology can offer additional insights.	How are generic skills transferred between different disciplines? What benefits does an interdisciplinary view of skill development offer? How can other fields contribute to generic skills research?
Temporal gaps	1. Analysis of temporal evolution. 2. Long-term impact. 3. Evaluation of changes due to market demands.	The lack of longitudinal studies limits the understanding of continuous development. The long-term impact on career success has not been sufficiently studied. Labor market demands are changing rapidly, but research has not adapted.	How do generic skills change over time? What is the impact of generic skills on long-term career success? How do new labor market demands affect skills development?

training highlights the need for educational programs to adapt to labor market demands. Educational institutions should update curricula to integrate both technical and generic skills. The thematic cluster identified, including "generic education," "higher education," "gamification," "e-learning," and "curriculum development," emphasizes the importance of incorporating novel methodologies and emerging technologies like gamification and e-learning to enhance learning interactivity and accessibility. These strategies improve students' readiness for the workforce and can create a more dynamic educational environment that aligns with evolving global trends and technological advancements, fostering a culture of continuous improvement.

The increasing prominence of concepts like professional development, entrepreneurship, and leadership, alongside employability and generic skills, suggests educational programs should balance technical and soft skills development. This is vital for preparing students for professional success. Additionally, bibliometrics reveal research gaps, guiding future studies to address less explored but crucial areas, ensuring continuous improvement of educational models and methodologies to stay competitive.

In business management, concepts such as leadership and entrepreneurship are vital for fostering innovation and resilience. Organizations can implement strategies that promote leadership and entrepreneurial mindsets. For public policy, these findings can guide educational and labor market policies that ensure workforce adaptability to economic changes, promoting collaboration between education, industry, and government.

4.5 Limitations

This study has limitations, such as its reliance on Scopus and Web of Science, which could exclude relevant studies from other databases or non-indexed journals, potentially affecting representativeness. Despite a rigorous methodology, biases in the inclusion and exclusion criteria may exist. The use of Microsoft Excel® and VOSviewer® for bibliometric indicators may limit the analysis to the functionalities of these tools, excluding more complex aspects that can be achieved with specialized software. Furthermore, keyword co-occurrence and emerging term analysis could be influenced by the quality and consistency of database indexing. These limitations should be taken into account when interpreting the results, especially regarding methodological and coverage restrictions.

4.6 Investigative gaps

Table 3 provides a framework for addressing the gaps in research on generic skills development, thereby facilitating the design of future studies that contribute significantly to the knowledge and application of these essential skills technologies and pedagogical approaches, including gamification and e-learning, on the advancement of transferable abilities. Despite the growing popularity of these tools, there is a paucity of empirical evidence regarding their efficacy and optimal methods for their implementation.

4.7 Research agenda

Higher education institutions have a pivotal role to play in the cultivation of generic skills, equipping students with not only specific technical knowledge but also transferable competencies that are vital in today's labor market. Higher education's significance lies in its capacity to cultivate an environment wherein students can hone

essential skills such as critical thinking, effective communication, and collaboration—fundamental elements for professional success.

It is essential that future research explores the influence of different educational models in higher education on the development of generic skills. For example, the impact of project-based approaches, problem-based learning and traditional teaching on the fostering of these skills could be investigated. Furthermore, it would be advantageous to examine the influence of educational policies and curricular reforms on the efficacy of generic skills development, taking into account the cultural and socioeconomic diversity of students. This would facilitate a more comprehensive understanding of optimal practices and facilitate their adaptation to diverse educational contexts.

In the contemporary context, generic skills are of paramount importance, as they represent competencies that are applicable in a multitude of situations and professions. These include skills such as problem-solving, teamwork, and adaptability, which are highly sought after by employers and are indispensable for a successful professional career.

With regard to future research, it would be beneficial to investigate the efficacy of diverse pedagogical approaches for cultivating generic competencies across various educational stages, extending beyond the domain of higher education. Furthermore, longitudinal studies could furnish invaluable insight into the manner in which these skills develop and evolve over time, from basic to vocational education. Furthermore, it would be beneficial to investigate the impact of technological advancement and globalization on the evolution of generic skills, as well as the development of effective methodologies for measuring and assessing these competencies in diverse work environments.

The concept of employability is pivotal in the development of generic skills, as it pertains to an individual's capacity to secure and retain suitable employment throughout their lifespan. In the contemporary employment context, employers are demonstrating a growing preference for candidates who not only possess specific technical expertise but also demonstrate the generic skills that enable them to adapt and flourish in an evolving labor market.

Future research could concentrate on assessing the efficacy of particular generic skills development programed designed to enhance graduate employability. This encompasses an examination of the interrelationship between learning experiences, such as internships and collaborative projects, and the acquisition of generic skills. Furthermore, it is vital to examine how disparate academic disciplines conceptualize and operationalize employability development, and to identify and assess the transferability and adaptability of practices between different fields of study, with a view to optimizing student outcomes.

The term "transferable skills" is used to describe abilities that can be applied in a variety of work contexts, irrespective of the specific work environment. Such skills include communication, time management and adaptability, and are fundamental to career progression and success. The growing recognition of the importance of transferable skills has prompted a more holistic approach to vocational education and training, with a greater integration of these skills into curricula to better prepare students for a range of professional roles.

To further this field of study, future research could investigate innovative methods for teaching and assessing transferable skills. This could include the use of emerging technologies, such as artificial intelligence and augmented reality, to create more dynamic and realistic learning environments. Furthermore, it would be advantageous to examine how these skills can be cultivated and evaluated in disparate cultural and economic settings, and how they can be adapted to align with the particular requirements of diverse industrial domains. The objective is to establish a robust foundation for the formulation of educational policies and training methodologies that facilitate the effective acquisition and deployment of transferable skills in an ever-evolving landscape of employment.

The concept of graduate employability has emerged as a significant and pertinent area of focus within the domain of generic skills development. The term "graduate employability" is used to describe the capacity of recent graduates to secure and retain employment that allows them to utilize and develop the knowledge and skills acquired during their academic training. In an increasingly competitive and dynamic labor market, graduate employability represents a crucial indicator for both educational institutions and employers, reflecting the effectiveness of educational programs in preparing students for the professional world. The current research evidence indicates that generic skills, such as communication, teamwork and problem-solving, are key to enhancing graduate employability. This highlights the importance of integrating these competencies into academic curricula.

In the future, research may be conducted to assess the effectiveness of various pedagogical approaches in enhancing graduate employability. For example, comparative studies between educational programs that include practical experiences, such as internships and projects in collaboration with industry, versus those that do not, could provide valuable insights into best practices for developing generic skills. Moreover, it would be beneficial to investigate the impact of cultural and economic differences on graduate employability, as well as the potential strategies for addressing these disparities. Furthermore, longitudinal research could assist in elucidating the manner in which generic skills acquired at the university level influence graduates' long-term career development.

The term "entrepreneurship" has also emerged as a key concept in the development of generic skills. The fostering of entrepreneurship encompasses not only the creation of new ventures but also the development of skills such as innovation, decision-making, and resilience, which are applicable in a wide range of work contexts. The teaching of entrepreneurship has become a priority for many academic institutions, as it provides students with the skills to identify opportunities, take calculated risks and manage resources effectively. In the contemporary work environment, these skills are of paramount importance, as the capacity to adapt and reinvent oneself is a prerequisite for professional success.

Future research could focus on evaluating the effectiveness of entrepreneurial education programs at different educational levels and cultural contexts. For example, differences in entrepreneurship outcomes between students who have participated in entrepreneurship courses and those who have not could be studied. Furthermore, it would be advantageous to examine the extent to which practical learning experiences, such as business incubation and social entrepreneurship projects, facilitate the acquisition of generic skills. Furthermore, it is vital to investigate the policies and practices that educational institutions and governments can implement to cultivate an entrepreneurial culture, and to identify the barriers and facilitators to entrepreneurship among young people.

The development of curricula is of paramount importance in the context of generic skills development, as it determines the structure and delivery of educational programs, with the objective of optimizing learning and skills acquisition. The present significance of curriculum development can be seen in its capacity to facilitate the effective integration of generic skills within curricula, thereby ensuring that students not only gain technical knowledge but also develop transversal skills such as critical thinking, communication and problem solving. In an increasingly flexible and dynamic global economy, a well-designed curriculum can equip students with the adaptability and resilience to navigate a range of complex and evolving challenges.

To reposition curriculum development as a relevant concept, future studies could focus on evaluating the effectiveness of different curricular approaches in developing generic skills. For instance, a comparative analysis of traditional curricula with those incorporating active learning methodologies, such as project-based learning and gamification, could yield valuable insights into optimal educational practices. Furthermore, it would be beneficial to explore the potential of educational technology, including e-learning platforms and digital resources, in enriching the curriculum and facilitating generic skills development. Additionally, it is imperative to investigate the personalization of learning, adapting the curriculum to the individual needs of students to optimize their potential.

The development of skills, particularly those that are transferable, is a crucial aspect of both professional and personal growth. The term "generic skills," also referred to as "soft skills," encompasses a range of competencies, including communication, leadership, teamwork, and time management. Such abilities are highly prized by employers, as they enable individuals to perform effectively in a range of roles and contexts. At present, there is a growing recognition of the importance of these skills in higher education and vocational training, which has resulted in an increased focus on their development within educational programs.

New studies may reestablish the relevance of skills by investigating the optimal methods for integrating them into curricula and training programs. For instance, longitudinal studies that track students from the point of their education through to their subsequent employment could yield invaluable insights into the manner in which generic skills influence their subsequent professional success. Moreover, research on the assessment and certification of generic skills can assist in standardizing and validating these competencies, thereby facilitating their recognition by employers. Furthermore, it is crucial to examine how generic skills can be optimally cultivated through informal and non-formal learning avenues, such as volunteering and extracurricular pursuits.

The education of engineers plays a pivotal role in the development of both technical and generic skills in future professionals. In addition to engineering-specific technical competencies, educational programs in this field should place an emphasis on the development of skills such as teamwork, communication, project management and innovation. Such abilities are vital for engineers to be able to address intricate issues and to work together effectively in teams comprising individuals from diverse disciplines. The continued relevance of engineering education lies in its capacity to equip students with the requisite skills to not only meet the demands of technical challenges, but also to adapt to the dynamic and evolving nature of the contemporary workplace.

In order to reposition engineering education as a core concept, future studies may focus on the integration of generic skills into engineering curricula. Additionally, research evaluating the effectiveness of project-based learning programs and collaborations with industry may provide valuable insights into how to improve student preparedness. Furthermore, exploring the use of advanced technologies, such as virtual and augmented reality, to teach technical and generic skills could offer new learning opportunities. Furthermore, it would be advantageous to examine the incorporation of mentoring and continuous professional development programs for engineers, thereby ensuring the maintenance of generic skills throughout their careers.

The effective integration of generic skills into educational environments necessitates the implementation of structured approaches that facilitate their teaching, monitoring, and systematic evaluation. In this regard, it is advisable to adopt active learning methodologies, such as project-based learning (PBL), service-learning (SL), and collaborative problem-solving, as these strategies place students at the center of the learning process and foster the development of transversal competencies such as communication, teamwork, adaptability, and decision-making.

For the purpose of evaluation, the utilization of performance rubrics is strongly recommended. These rubrics offer a set of objective criteria for the assessment of proficiencies in critical thinking, creativity, and social responsibility. These rubrics can be adapted to various disciplines and professional contexts, thereby facilitating both formative and summative feedback.

Moreover, the Tuning Educational Structures in Europe framework can function as a reference point for delineating learning outcomes related to generic competencies and for guiding their curricular integration through a competence-based approach. Digital portfolios serve as a practical instrument for documenting students' progress over time and showcasing meaningful experiences that fortify these competencies. The employment of mixed methods of evaluation, including interviews, self-assessments, and systematic observations, can enhance the assessment of generic skills by considering both observable performance and individual perceptions of the learning process.

This section responds to the research question regarding the identification of themes that are designated as protagonists in the design of a research agenda on generic skills development. Consequently, core themes such as employability, entrepreneurship, transferable skills, curriculum design, and engineering education emerge as pivotal axes for structuring future research agendas. These themes are not only conceptually relevant but also aligned with current academic and labor market demands, thus shaping the priorities of research in this domain.

5 Conclusion

It can be concluded that interest in this topic reached its peak in the years 2021, 2022, and 2023. This increase in the number of publications reflects a growing and sustained trend in scientific literature, characterized by exponential growth in the number of published articles.

The principal research references in the field of generic skills development have been identified as the most influential authors, journals and countries. Notable contributors to this field include Chan CKY, authors whose work has been published in journals such as Studies in Higher Education, and researchers from countries such as

Australia, the United Kingdom, the United States, and Malaysia who have made significant contributions to the field.

The evolution of the thematic focus of scientific production in the development of generic skills demonstrates a transition from an initial emphasis on the concept of "transferable skills" to a greater diversification and specialization in areas such as "higher education," "engineering education" and "professional training."

The analysis of the principal thematic clusters has revealed a robust conceptual affinity between terms such as "Generic Education," "Higher Education," "Gamification," "E-Learning" and "Curriculum Development." This dominant thematic cluster indicates that the current literature is not only focused on the definition and assessment of generic skills, but also on the innovative pedagogical methodologies and approaches that can be used for their effective development. The incorporation of gamification and e-learning into curriculum development signifies a progressive and technological approach to generic skills education.

In terms of growing and emerging keywords, concepts such as "higher education," "employability," and "generic skills" have been identified as consolidated and prominent in the current literature. In contrast, terms such as "professional development," "entrepreneurship," "leadership," and "hard skills" emerge as areas of growing interest.

Ultimately, the identification of pivotal themes for the formulation of a research agenda indicates that the prospective trajectory of research in generic skills development should prioritize a more comprehensive examination of the pivotal concepts that have been delineated. This includes a more detailed exploration of the ways in which generic skills can be integrated and assessed in different educational and professional contexts, as well as an investigation of new pedagogical and technological methodologies that could be used to enhance their development. The research agenda will not only advance the theoretical understanding of the field, but will also have significant practical implications for vocational education and training on a global scale.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

DR-R: Writing – original draft, Writing – review & editing. EA-C: Writing – original draft, Writing – review & editing. JJ: Writing – original draft, Writing – review & editing. AV-A: Writing – original draft, Writing – review & editing. SC-A: Writing – original draft, Writing – review & editing. JV: Writing – original draft, Writing – review & editing. EY: Writing – original draft, Writing – review & editing.

Funding

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The authors declare that no Gen AI was used in the creation of this manuscript.

Any alternative text (alt text) provided alongside figures in this article has been generated by Frontiers with the support of artificial intelligence and reasonable efforts have been made to ensure accuracy, including review by the authors wherever possible. If you identify any issues, please contact us.

Publisher's note

References

AbuJbara, N. A. K., and Worley, J. A. (2018). Leading toward new horizons with soft skills. *On the Horizon* 2, 247–259. doi: 10.1108/OTH-10-2017-0085

Andrews, G., and Russell, M. (2012). Employability skills development: strategy, evaluation and impact. *High. Educ. Skills Work-Based Learn.* 2, 33–44. doi: 10.1108/20423891211197721

Berven, B. C., Franck, K. L., and Hastings, S. W. (2020). Investing in extension's workforce: assessing and developing critical competencies of new agents. *J. Ext.* 58:28. doi: 10.34068/joe.58.02.28

Bhatti, M., Alyahya, M., Alshiha, A. A., Qureshi, M. G., Juhari, A. S., and Aldossary, M. (2023). Exploring business graduates employability skills and teaching/learning techniques. *Innov. Educ. Teach. Int.* 60, 207–217. doi: 10.1080/14703297.2022.2049851

Bratianu, C., and Vatamanescu, E. M. (2017). Students' perception on developing conceptual generic skills for business: a knowledge-based approach. *Vine J. Inf. Knowl. Manag. Syst.* 47, 490–505. doi: 10.1108/VJIKMS-11-2016-0065

Buckingham-Hatfield, S. (1995). Student-community partnerships: advocating community enterprise projects in geography. *J. Geogr. High. Educ.* 19, 143–150. doi: 10.1080/03098269508709298

Chan, C. K., and Lee, K. K. (2021). Constructive alignment between holistic competency development and assessment in Hong Kong engineering education. *J. Eng. Educ.* 110, 437–457. doi: 10.1002/jee.20392

Danielewicz-Betz, A., and Kawaguchi, T. (2014). "Gaining hands-on experience via collaborative learning: Interactive computer science courses," in *2014 International Conference on Interactive Collaborative Learning (ICL)*, 403–409. IEEE.

Dinning, T. (2017). Embedding employability and enterprise skills in sport degrees through a focused work-based project; a student and employer viewpoint. *Cogent Educ.* 4:1387085. doi: 10.1080/2331186X.2017.1387085

Fletcher, A. J., Sharif, A. W. A., and Haw, M. D. (2017). Using the perceptions of chemical engineering students and graduates to develop employability skills. *Educ. Chem. Eng.* 18, 11–25. doi: 10.1016/j.ece.2016.07.001

Franco-Ángel, M., Carabali, J., and Velasco, M. I. (2023). The internship performance of undergraduate students: are hard or soft skills more important? *Ind. High. Educ.* 37, 384–396. doi: 10.1177/09504222221127213

Gonzalez, M. A. G., Abu Kasim, N. H., and Naimie, Z. (2013). Soft skills and dental education. *Eur. J. Dent. Educ.* 17, 73–82. doi: 10.1111/eje.12017

Griffiths, D. A., Inman, M., Rojas, H., and Williams, K. (2018). Transitioning student identity and sense of place: future possibilities for assessment and development of student employability skills. *Stud. High. Educ.* 43, 891–913. doi: 10.1080/03075079.2018.1439719

Grijalvo, M., Segura, A., and Núñez, Y. (2022). Computer-based business games in higher education: a proposal of a gamified learning framework. *Technol. Forecast. Soc. Change* 178:121597. doi: 10.1016/j.techfore.2022.121597

Groen, A., Bijsmans, P., and Adriaensen, J. (2020). Improving a self-assessment tool to monitor generic skills development in an active learning environment. *Eur. Polit. Sci.* 19, 352–366. doi: 10.1057/s41304-020-00258-x

Gupta, C., and Gupta, V. (2023). C4 skills in the engineering graduate: a study to align software engineering education with market-driven software industry needs. *IEEE Trans. Educ.* 67, 31–43. doi: 10.1109/TE.2023.3301625

Jackson, D. (2015). Employability skill development in work-integrated learning: barriers and best practice. *Stud. High. Educ.* 40, 350–367. doi: 10.1080/03075079.2013.842221

Jones, E. (2013). Internationalization and employability: the role of intercultural experiences in the development of transferable skills. *Public Money Manag.* 33, 95–104. doi: 10.1080/09540962.2013.763416

Keneley, M., and Jackling, B. (2014). "The acquisition of generic skills of culturally-diverse student cohorts" in Personal Transferable Skills in accounting education. eds. K. Watty, B. Jackling and R. M. S. Wilson (London: Routledge), 157–175.

Kovačević, M., Dekker, T. J., and van der Velden, R. (2024). Employability development in undergraduate programmes: how different is liberal arts education? *Teach. High. Educ.* 29, 2184–2204. doi: 10.1080/13562517.2023.2212602

Lohberger, K., and Braun, E. (2022). Comparing learning opportunities of generic skills in higher education to the requirements of the labour market. *Front. Educ.* 7:886307. doi: 10.3389/feduc.2022.886307

López-Íñiguez, G., and Bennett, D. (2020). A lifespan perspective on multi-professional musicians: does music education prepare classical musicians for their careers? *Music. Educ. Res.* 22, 1–14. doi: 10.1080/14613808.2019.1703925

Miyakawa, E., and Oguchi, T. (2022). Family tourism improves parents' well-being and children's generic skills. *Tour. Manag.* 88:104403. doi: 10.1016/j.tourman.2021.104403

Orduña-Malea, E., and Costas, R. (2021). Link-based approach to study scientific software usage: the case of VOSviewer. *Scientometrics* 126, 8153–8186. doi: 10.1007/s11192-021-04082-y

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., et al. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 372:n71. doi: 10.1136/bmj.n71

Pardo-Garcia, C., and Barac, M. (2020). Promoting employability in higher education: a case study on boosting entrepreneurship skills. *Sustainability* 12:4004. doi: 10.3390/su12104004

Rebele, J. E., and Pierre, E. K. S. (2019). A commentary on learning objectives for accounting education programs: the importance of soft skills and technical knowledge. *J. Account. Educ.* 48, 71–79. doi: 10.1016/j.jaccedu.2019.07.002

Rodriguez Martinez, A., Sánchez, V. S., Falcon Linares, C., and Latorre Cosculluela, C. (2021). Key soft skills in the orientation process and level of employability. *Sustainability* 13:3554. doi: 10.3390/su13063554

Scarinci, J., and Pearce, P. (2012). The perceived influence of travel experiences on learning generic skills. *Tour. Manag.* 33, 380–386. doi: 10.1016/j.tourman.2011.04.007

Singh, V. K., Singh, P., Karmakar, M., Leta, J., and Mayr, P. (2021). The journal coverage of web of science, Scopus and dimensions: a comparative analysis. *Scientometrics* 126, 5113–5142. doi: 10.1007/s11192-021-03948-5

Succi, C., and Canovi, M. (2020). Soft skills to enhance graduate employability: comparing students and employers' perceptions. *Stud. High. Educ.* 45, 1834–1847. doi: 10.1080/03075079.2019.1585420

Teng, W., Ma, C., Pahlevansharif, S., and Turner, J. J. (2019). Graduate readiness for the employment market of the 4th industrial revolution: the development of soft employability skills. *Educ. Train.* 61, 590–604. doi: 10.1108/ET-07-2018-0154

Tortorella, G., van Dun, D. H., and de Almeida, A. G. (2020). Leadership behaviors during lean healthcare implementation: a review and longitudinal study. *J. Manuf. Technol. Manag.* 31, 193–215. doi: 10.1108/JMTM-02-2019-0070

Touloumakos, A. K. (2020). Expanded yet restricted: a mini review of the soft skills literature. *Front. Psychol.* 11:2207. doi: 10.3389/fpsyg.2020.02207

Wautelet, Y., Kolp, M., and Neysen, N. (2012). E-SPM: an online software project management game. *Int. J. Eng. Educ.* 28:1316.

Webb, J., and Chaffer, C. (2016). The expectation performance gap in accounting education: a review of generic skills development in UK accounting degrees. *Account. Educ.* 25, 349–367. doi: 10.1080/09639284.2016.1191274