



Using AI for Soft Skills Development: A Systematic Literature Review

Received: February 14, 2025

Reviewed: May 11, 2025

Published: January 1, 2026

Luz Stella Rosero-Mellizo*  

Adriana María Martínez-Arias**  

Abstract

Artificial Intelligence (AI) and soft skills have gained increasing relevance in the context of widespread digitalization, especially in the educational and workplace fields. This systematic literature review examines the current landscape of research on the use of AI tools for developing soft skills in students, teachers, professionals, and employees. Following the PRISMA 2020 protocol, 384 records were retrieved from databases including SpringerLink, Scopus, ScienceDirect, BASE, Google Scholar, and Redalyc, of which 54 articles met the inclusion criteria for in-depth analysis. A structured rubric was employed to extract and synthesize relevant qualitative and quantitative data. The findings underscore AI's potential to personalize learning and enhance skills such as communication and critical thinking. However, notable gaps remain in its implementation within primary and secondary education, alongside ongoing ethical concerns. In the workplace, AI contributes to greater efficiency but also demands reinforcement of interpersonal competencies and upskilling of workforce. The review also reveals limited application in vulnerable populations and insufficient attention to socio-emotional skill development. The study concludes that AI, when implemented ethically and pedagogically, can enhance soft skills—provided it is supported by comprehensive teacher training and policies that foster a human-centered digital transformation.

Keywords

artificial intelligence; soft skills; education; work; critical thinking; social skills

* Magíster en Tecnologías Digitales Aplicadas a la Educación. Universidad Autónoma de Bucaramanga, Bucaramanga, Colombia. lrosero789@unab.edu.co

** Doctora en Planificación en Innovación Educativa. Universidad Autónoma de Bucaramanga, Bucaramanga, Colombia. amartinez18@unab.edu.co

Usando IA para desenvolvimiento de habilidades sociales: uma revisão sistemática da literatura

Resumo

A Inteligência Artificial (IA) e as competências sociais têm ganhado cada vez mais relevância no contexto da digitalização generalizada, especialmente nos âmbitos educativo e laboral. Esta revisão sistemática da literatura examina o panorama atual da investigação sobre o uso de ferramentas de IA para o desenvolvimento de competências sociais em estudantes, professores, profissionais e funcionários. Seguindo o protocolo PRISMA 2020, foram recuperados 384 registros de bases de dados como SpringerLink, Scopus, ScienceDirect, BASE, Google Scholar e Redalyc, dos quais 54 artigos cumpriam os critérios de inclusão para uma análise aprofundada. Foi utilizada uma rubrica estruturada para extrair e sintetizar os dados qualitativos e quantitativos relevantes. Os resultados destacam o potencial da IA para personalizar a aprendizagem e melhorar habilidades como comunicação e pensamento crítico. No entanto, ainda existem lacunas notáveis na sua aplicação no ensino fundamental e médio, além de preocupações éticas contínuas. No âmbito laboral, a IA contribui para uma maior eficiência, mas também exige o reforço das competências interpessoais e a melhoria das qualificações da mão de obra. A revisão também revela uma aplicação limitada em populações vulneráveis e uma atenção insuficiente ao desenvolvimento de competências socioemocionais. O estudo conclui que a IA, quando implementada de forma ética e pedagógica, pode melhorar as competências sociais, desde que seja apoiada por uma formação integral dos professores e por políticas que promovam uma transformação digital centrada no ser humano.

Palavras-chave

inteligência artificial; competências sociais; educação; trabalho; pensamento crítico, competências sociais

Usando IA para desenvolvimiento de habilidades sociales: uma revisão sistemática da literatura

Resumen

La Inteligencia Artificial (IA) y las habilidades blandas han cobrado creciente relevancia en el contexto de la digitalización generalizada, especialmente en los ámbitos educativo y laboral. Esta revisión sistemática de la literatura examina el panorama actual de la investigación sobre el uso de herramientas de IA para el desarrollo de habilidades blandas en estudiantes, docentes, profesionales y empleados. Siguiendo el protocolo prisma 2020, se recuperaron 384 registros de bases de datos como SpringerLink, Scopus, ScienceDirect, base, Google Scholar y Redalyc, de los cuales 54 artículos cumplían los criterios de inclusión para un análisis a profundidad. Se empleó una rúbrica estructurada para extraer y sintetizar los datos cualitativos y cuantitativos pertinentes. Los resultados subrayan el potencial de la IA para personalizar el aprendizaje y mejorar habilidades como la comunicación y el pensamiento crítico. Sin embargo, siguen existiendo notables lagunas en su aplicación en la educación primaria y secundaria, además de las continuas preocupaciones éticas. En el ámbito laboral, la IA contribuye a una mayor eficiencia, pero también exige el refuerzo de las competencias interpersonales y la mejora de las cualificaciones de la mano de obra. La revisión también revela una aplicación limitada en poblaciones vulnerables y una atención insuficiente al desarrollo de habilidades socioemocionales. El estudio concluye que la IA, cuando se implementa de manera ética y pedagógica, puede mejorar las habilidades sociales, siempre que se apoye en una formación integral del profesorado y en políticas que fomenten una transformación digital centrada en el ser humano.

Palabras clave

inteligencia artificial; habilidades blandas; educación; trabajo; pensamiento crítico; habilidades sociales

To cite this article:

Rosero-Mellizo, L. S. y Martínez-Arias, A. M. (2026). Using AI for Soft Skills Development: A Systematic Literature Review, *Revista Colombiana de Educación*, (98), e22795, <https://doi.org/10.17227/rce.num98-22795>

Introduction

Evaluating the potential and disruptions of artificial intelligence (AI) entails acknowledging its role and significance in fostering the development of soft skills (SS) to enhance both educational and professional processes. This perspective aligns with the current position of the United Nations Educational, Scientific and Cultural Organization—UNESCO, which advocates for AI to strengthen human capabilities, with an emphasis on enriching inquiry, promoting intellectual development, empowering diverse abilities, and upholding ethical principles.

The aim of this systematic literature review (SLR) is to examine academic contributions at the intersection of AI, SS development, and the domains of education and employment. Specifically, it seeks to address the advantages and disadvantages associated with the use of AI-based tools for enhancing soft skills, and to explore current academic perspectives and future directions related to this topic. According to UNESCO (2023), international policy recommends promoting the inclusive and equitable application of AI in education and job-related skills development, with an ongoing emphasis on ethical and transparent use.

An initial search identified existing systematic reviews; however, these mainly focused on the ethical implementation of AI in education or its use in employment settings such as talent acquisition and skills certification. Reviews specifically addressing AI's contributions to the development of soft skills within educational and workplace contexts have largely been overlooked. Therefore, the present study offers an updated and integrative perspective that seeks to address this gap by synthesizing theoretical approaches, empirical evidence, and emerging applications.

Artificial Intelligence

Over the past four years, the growth of AI has accelerated, as demonstrated by its integration into educational and occupational settings. This underscores the need to assess the current landscape of AI-related research in order to understand its scope within a human-centered vision of digital transformation.

The first formal definition of AI was introduced at the Dartmouth Conference in 1956 by American mathematician John McCarthy, who described it as “the science and ingenuity of making intelligent machines, specifically, intelligent computer programs” (Vidal, Madruga & Valdés, 2019). More recently, Kaplan and Haenlein (2019) defined AI as “the ability of a system to correctly interpret external data, learn from that data, and use those learnings to achieve specific goals and tasks through flexible adaptation.” Similarly, Dwivedi et al. (2021) emphasize AI's potential to

augment or replace human activity by leveraging recognition, comprehension, learning, and action.

Integrating AI into Educational and Workplace Settings

AI is exerting a transformative influence on both business and society—comparable to the impact of Internet and the World Wide Web, which gave rise to e-commerce, consumer-centric practices, and the sharing economy (Malik, Budhwar, & Srikanth, 2020). One of AI's most prominent applications in the corporate sector lies in human resource management, where it is increasingly used to support talent identification and selection. AI plays a pivotal role in shaping and preparing the workforce, making continuous research on this field essential (Popo et al., 2022).

However, organizations considering the integration of AI into human talent selection processes must evaluate the potential return on investment. As a rapidly evolving field, premature adoption may yield limited benefits. A systematic review by Pan and Froese (2023), encompassing 184 scholarly articles, revealed that research within technical disciplines has primarily concentrated on the development and application of AI for specific HR functions. Their findings conclude that effective implementation is contingent upon the use of mature and well-established technological tools.

In the educational domain, the application of AI has followed a dynamic trajectory. Self (2016) highlights the *International Journal of Artificial Intelligence in Education* (IJAIED), established in 1983, as the first academic journal exclusively dedicated to this intersection. Since its inception, AI-driven educational technologies have advanced, finding relevance across various educational levels. For instance, Xu and Ouyang (2022) mention AI's contributions in STEM education, including predictive analytics for student performance, behavioral monitoring, and the integration of educational robotics to enhance teaching and learning processes.

In personalized learning, the integration of tools powered by machine learning algorithms has become increasingly prevalent. These technologies enable the analysis of student performance, identification of knowledge gaps, and customization of learning pathways. If educational institutions (EIS) adopt the potential of AI, they can enhance student engagement, improve knowledge retention, and foster conceptual understanding (Kumar et al., 2023).

Several literature reviews and research initiatives (LRIS) have underscored AI's contributions to the educational sector. These include its ethical application, its role in educational management and assessment processes; and its influence on strategic development policies. Nevertheless, a gap persists concerning the use of AI to support

learners' personal and professional development. Furthermore, these reviews emphasize that effective generation of cognitive processes requires a thoughtful adoption of AI tools, which can promote autonomous learning and provide immediate feedback—yet always in synergy with pedagogical guidance from teachers (López et al., 2024).

Research by Martínez et al. (2023) also highlights a limitation in the existing body of literature: AI applications in education have predominantly focused on higher education settings, particularly at the university and postdoctoral levels. As a result, there is a research gap concerning its integration and impact in elementary and secondary education.

On the other hand, to better understand the use of AI in the workplace and education, it is important to classify the kinds of tools being used. In the workplace, specifically in human resources, AI tools include big data and predictive models for recruitment that support corporate governance, decision-making, online selection processes, vacancy posting, profile quality, video interviews, and reporting (Díaz, 2024).

In the education sector, these tools have been classified according to their purpose as follows: adaptive tutoring systems that customize educational content and learning activities based on individual student needs and progress; machine learning (ML) and data analytics platforms for analyzing large sets of educational data; virtual assistants and educational chatbots that interact with humans by providing information, answering questions, and providing basic tutoring; recommendation systems and educational content creation tools; online learning platforms with integrated AI; automatic assessment systems for assignments and exams; and simulations and virtual learning environments (Mujica, 2024).

Soft Skills in the Age of Artificial Intelligence

This literature synthesis review (LSR) also explores a topic of growing importance in both the educational and professional domains: *soft skills*. Often equated with life skills, these competencies are defined by the World Health Organization—WHO (1994) as the essential abilities that enable individuals to exhibit adaptive and positive behavior, thereby effectively navigating the demands and challenges of everyday life.

Given the lack of consensus on a standardized classification of soft skills, this article adopts the framework of *21st Century Competencies*, along with the concept of *executive functioning* as a conceptual reference. This approach integrates soft skills with higher-order cognitive abilities, such as critical thinking and problem-solving (Ortega, 2016). Within this framework, soft skills are categorized into three main

domains: interpersonal skills, which include assertive communication, negotiation and mediation, teamwork, trust-building, and empathy; cognitive skills, encompassing self-assessment, the ability to analyze and anticipate consequences, problem-solving, decision-making, and critical thinking; and emotional regulation skills, reflected in one's ability to manage stress, regulate intense emotions, and cope effectively with anger, sadness, and frustration (Guerra, 2019).

Methodology

This study employs a systematic literature review (SLR), defined by Petticrew and Roberts (2006) as a methodological approach designed to identify, evaluate, and synthesize existing research related to a specific topic. Unlike narrative or traditional reviews, the SLR follows a predefined and replicable protocol that minimizes bias, enhances transparency, and provides a comprehensive and critical overview of the current state of knowledge within a given field. This method is particularly valuable for examining emerging, interdisciplinary, and rapidly evolving topics—such as the intersection of artificial intelligence (AI) and the development of soft skills (SS) in educational and workplace contexts.

To ensure methodological rigor, this review adheres to the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. This framework provides standardized procedures to enhance the clarity, transparency, and reproducibility of the review process, particularly in the identification, selection, and synthesis of the studies included. It facilitated the systematic organization of the literature search, the application of inclusion and exclusion criteria, and the critical appraisal of the selected studies.

Data Selection and Exclusion Criteria

The initial search strategy was limited to peer-reviewed articles published between 2022 and 2024, focusing on the intersection of artificial intelligence, soft skills, and school settings. To facilitate the collection and analysis of relevant literature, the search was initially restricted to publications in English, given its predominance as the primary language of scholarly communication in this field. However, due to the novelty of the topics, the initial search yielded minimal results. Consequently, the search equation was broadened to capture a wider range of studies, as follows:

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TITLE-ABS-KEY(("Artificial Intelligence") AND ("Soft skills")) AND PUBYEAR > 2022 AND PUBYEAR < 2024 AND (LIMIT-TO (LANGUAGE, "English") OR LIMIT-TO (LANGUAGE, "Spanish") OR LIMIT-TO (LANGUAGE, "Portuguese"))
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AND (LIMIT-TO (SUBJAREA, "COMP") OR LIMIT-TO (SUBJAREA, "ARTS") OR LIMIT-TO (SUBJAREA, "SOCI") OR LIMIT-TO (SUBJAREA, "MULT") OR LIMIT-TO (SUBJAREA, "EDUC") OR LIMIT-TO (SUBJAREA, "COMP"))).

The literature search was conducted in English, Spanish, and Portuguese, and search terms were required to appear in the title, abstract, or keywords of the articles. The scope of the review was limited to the following disciplinary areas, as they are most closely aligned with the objectives of the study: computer science, humanities, social sciences, interdisciplinary studies, education, general computer science, and educational technology. All search terms were aligned with descriptors from the ERIC Thesaurus.

The databases consulted included SpringerLink, Scopus, BASE, Google Scholar, and the ScienceDirect platform, which provides direct access to Elsevier publications. An initial total of 354 records was retrieved on December 7, 2024. Subsequently, on December 23, 2024, the Redalyc database was incorporated into the search, increasing the total number of retrieved records to 384. During the screening process, 10 duplicate records were eliminated. An additional 15 documents were excluded for being systematic reviews, 264 were deemed irrelevant to the research topic, and 20 were excluded for being university theses, editorials, or due to inaccessible or broken links. For articles retrieved from Scopus that did not provide full-text access, the complete documents were obtained through UNAB University's library, which offers institutional access to subscription-based journals. The selection of these databases was guided by their academic credibility and indexing in reputable repositories.

To ensure comprehensive and representative coverage of the topic, the search scope was broadened through the inclusion of multiple academic databases. The screening and selection process was conducted independently by the authors, who reviewed and validated each record based on the pre-established inclusion criteria.

An initial pool of 85 articles was shortlisted following a preliminary assessment of abstracts and conclusions. Of these, nine articles had restricted access but were retrieved through institutional subscriptions available via UNAB University. Following a more detailed review of the full texts, 54 articles were deemed eligible and included in the final analysis. The remaining articles were excluded for lacking relevance to the intersection of AI and soft skills, for being systematic reviews, or for duplication within the dataset. Table 1 presents the inclusion and exclusion criteria applied during the selection process, while Figure 1 illustrates the PRISMA-based flowchart outlining the stages of identification, screening, eligibility assessment, and final inclusion of the studies.

Table 1. Inclusion and exclusion criteria

Criteria	Inclusion	Exclusion
Language	English, Spanish, Portuguese	Other languages
Year of publication	2022 to 2024	Years prior to 2022
Context	Application of AI in the development, acquisition, or enhancement of soft skills in the educational and labor fields.	Application of AI without including soft skills. Systematic reviews in other fields.
Application area	Computer science, humanities, social sciences, multiple disciplines, education, general computer science, and educational technology.	Other areas
Types of Sources	Indexed academic databases: SpringerLink, Scopus, ScienceDirect, Base y Google Scholar, Redalyc.	Non-academic databases

Source: Own elaboration

Variables Considered in the Analysis

The selected articles were coded and categorized according to the database from which they were retrieved. Data collection was carried out using a bibliographic review rubric adapted into a Google Form, allowing for display and easier analysis via spreadsheet. For analytical purposes, the information was filtered and organized based on a set of methodological variables, aligned with both quantitative and qualitative research typologies. For the quantitative variables, data such as year of publication, country, source, type of research, and target population (high school students, university students, or employees) were collected. For the qualitative variables, information was obtained on the research objective, methodology, and main results.

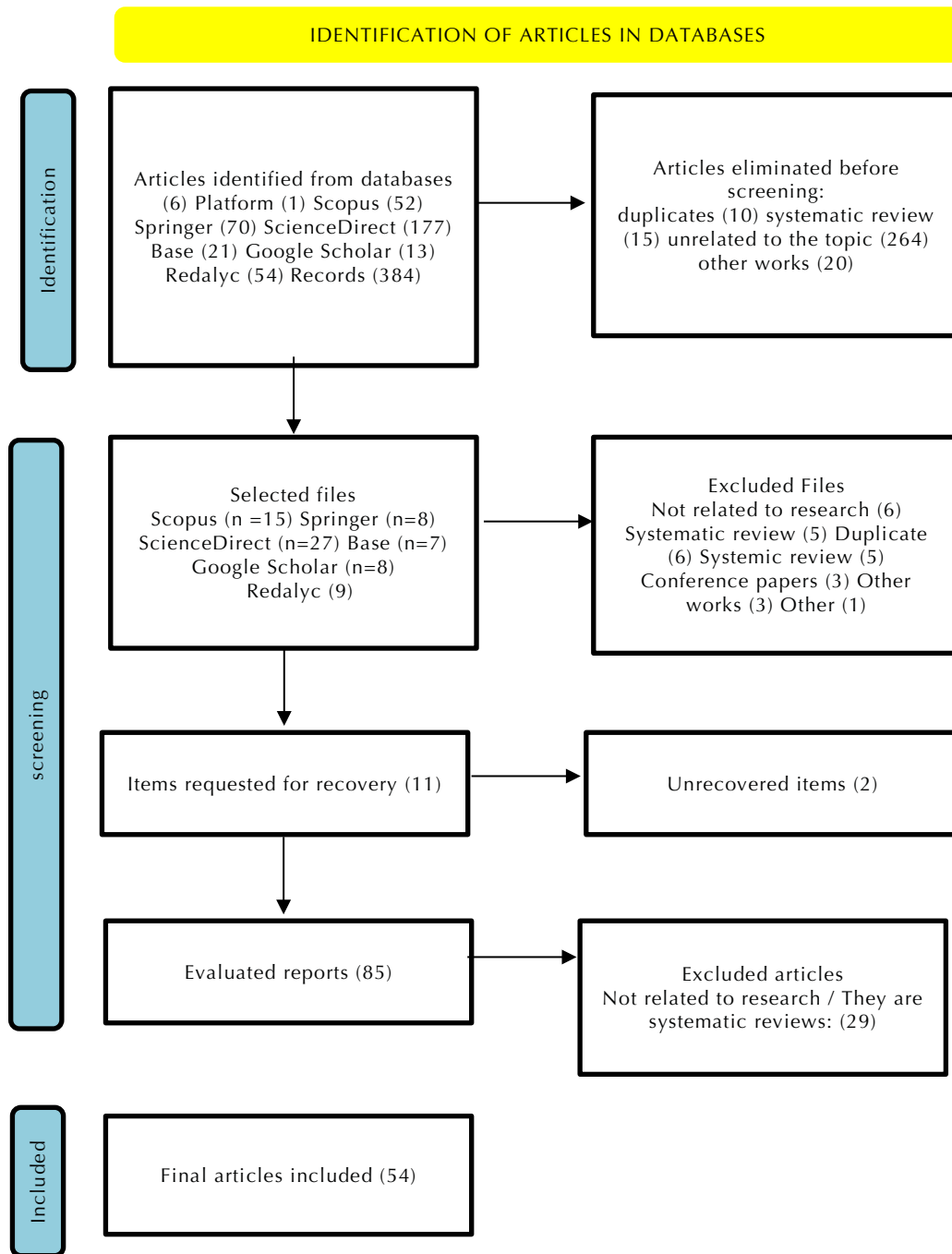


Figure 1. Flowchart. Source: Own elaboration

Results

This section presents the key findings of the study, including publication year, geographic focus, research objectives, methodology, interventions, target population, AI tools employed, and main conclusions. Table 2 in the Appendix summarizes these aspects for the 54 selected articles, organized by year. The analysis begins with a general overview of the selected studies, followed by an exploration of the relationships between soft skills, AI applications, educational settings, and work contexts. It also highlights the most significant soft skills, identifies the target populations, the AI technologies used, research objectives, methodologies, and the main findings.

Publication Trends

The reviewed studies were published between 2022 and 2024, indicating the recency of research in this area. The majority (41) were published in 2024, followed by 8 in 2023 and 2 in 2022 (see Figure 2).

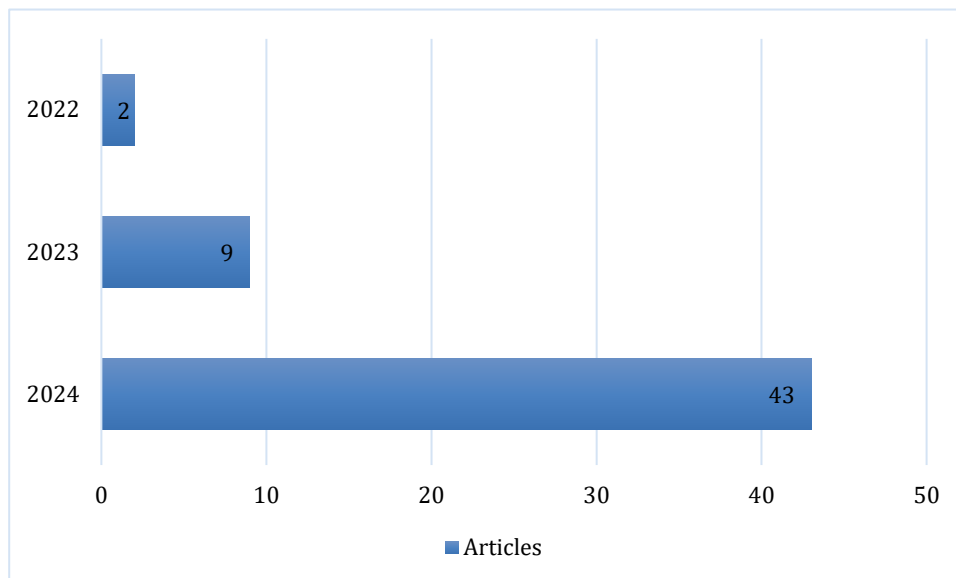


Figure 2. Year of publication of the articles. Source: Own elaboration

The studies originated from a diverse range of countries and were therefore grouped by continent for analytical clarity. The continental distribution is illustrated in Figure 3.

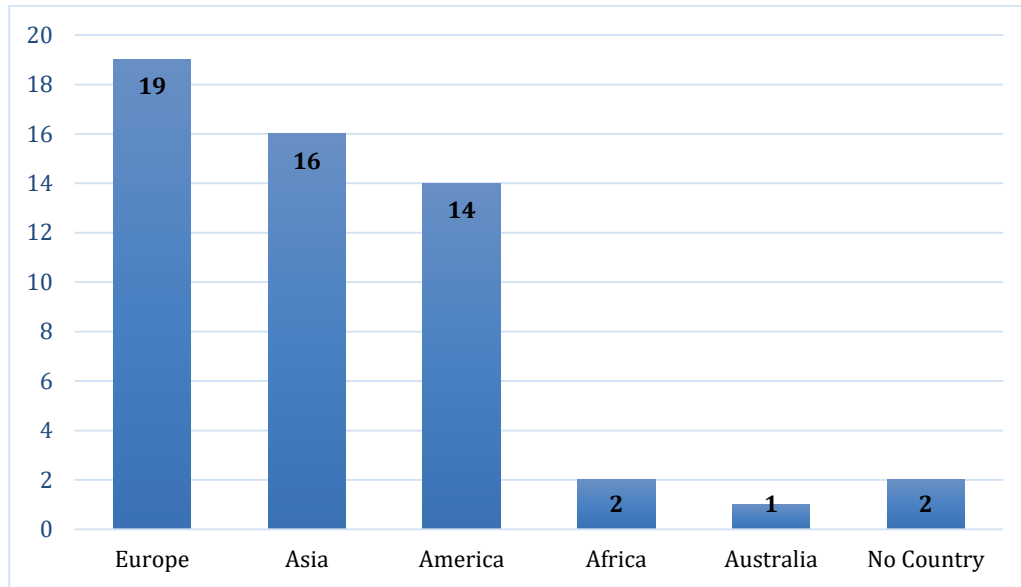


Figure 3. Geographic distribution of the reviewed studies by continent. Source: Own elaboration.

The majority of studies were conducted in Europe (n=19): Italy (4), Greece (1), Spain (6), France (1), Switzerland (1), Germany (1), Ukraine (2), England (1), Slovakia (1), and Romania (1). Asia follows with a total of 16 research projects conducted in Taiwan (1), South Korea (1), Indonesia (1), India (1), Kuwait (2), Malaysia (1), United Arab Emirates (1), Iran (1), China (3), Singapore (1), and Saudi Arabia (3). In the Americas, a total of 14 research projects were conducted in the United States (3), Peru (3), Chile (1), Ecuador (3), Venezuela (1), Mexico (2), and Colombia (1). Two studies were conducted in Africa (Morocco and Egypt), one in Australia, and two did not specify a country of origin.

Relationship between Soft Skills, Artificial Intelligence, Education, and the Workplace

To better understand the focus of this SLR, the term co-occurrence map in Figure 4, created with VOSviewer, is presented. It highlights the key research themes, based on titles, objectives, methodologies, and conclusions. The map shows four subclusters: AI (green), education (blue), soft skills (red), and ChatGPT (olive green).

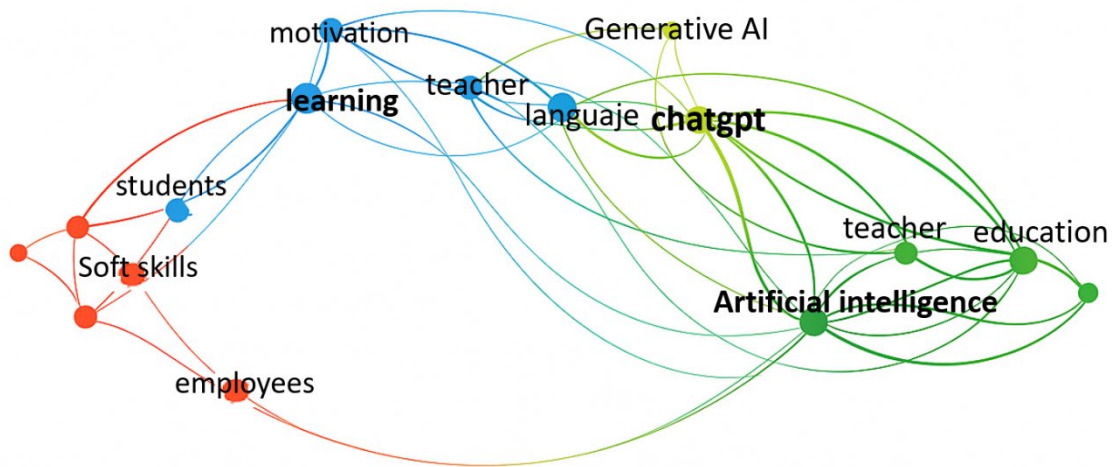


Figure 4. Network map: Artificial Intelligence and Soft Skills. Source: Own elaboration.

The AI subcluster is closely linked to ChatGPT, the most frequently used tool in the reviewed studies. Employed by both educators and students, ChatGPT serves diverse educational functions, positioning it as a central connector between academic disciplines and soft skills development. The learning subcluster (in blue) is also associated with AI, primarily through the use of ChatGPT, underscoring the increasing integration of AI technologies into teaching and learning processes. This relationship reflects AI's potential to transform conventional educational practices, enabling more adaptive and personalized learning environments.

AI and learning are further connected to the soft skills subcluster (in red), illustrating the interdependence among these components and highlighting the need to embed AI tools within educational training. This integration fosters the development of soft skills, essential to contemporary professional contexts. Notably, a strong link is also observed between soft skills and "employees", emphasizing the workplace relevance, and the importance of nurturing soft skills from early stages in the education system. Figure 5 lists the specific soft skills identified in the analyzed studies.

Soft Skills Intervened

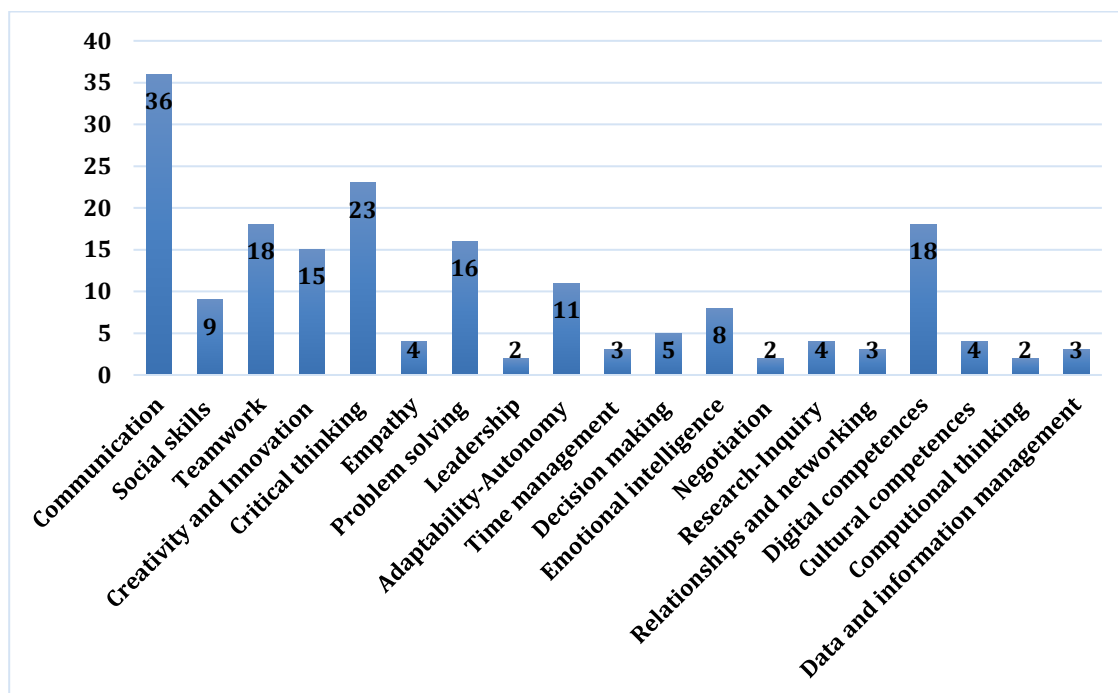


Figure 5. Soft skills intervened. Source: Own elaboration.

The most important soft skills identified in both educational and workplace contexts include communication skills, critical thinking, digital competences, teamwork, creativity and innovation, problem-solving, adaptation and/or flexibility, and social skills. According to Elionzo (cited in Álava et al., 2024), the ability to communicate assertively allows individuals to express ideas, thoughts, feelings, and perceptions. It also influences how one reacts and asserts their rights, thereby strengthening self-esteem and self-confidence.

In the education sector, the most frequently addressed soft skills are shown in Figure 6, while those most emphasized in the labor sector are presented in Figure 7.

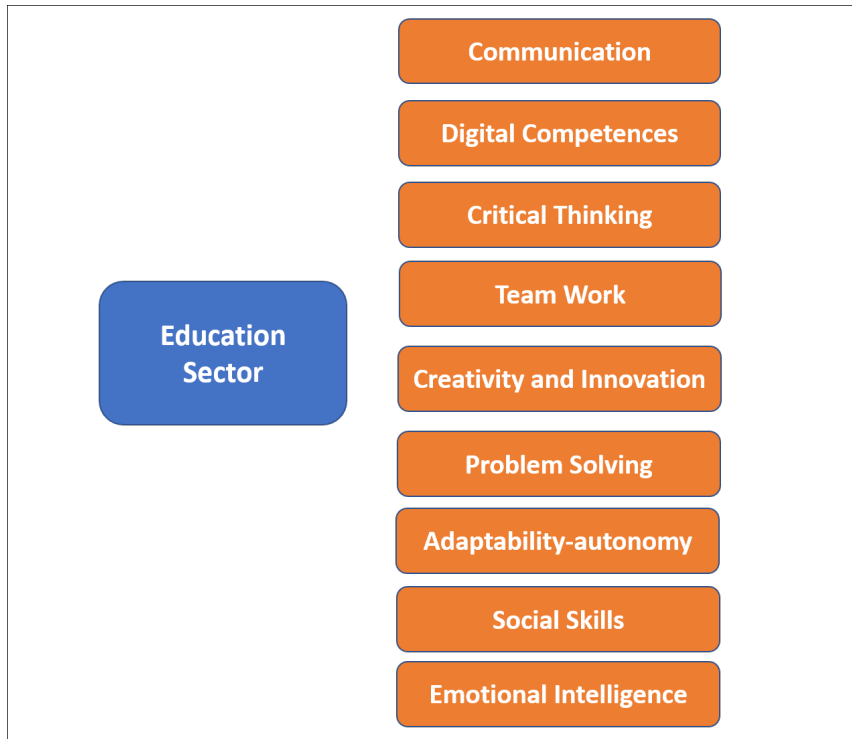


Figure 6. Soft skills most frequently targeted in the education sector. Source: Own elaboration

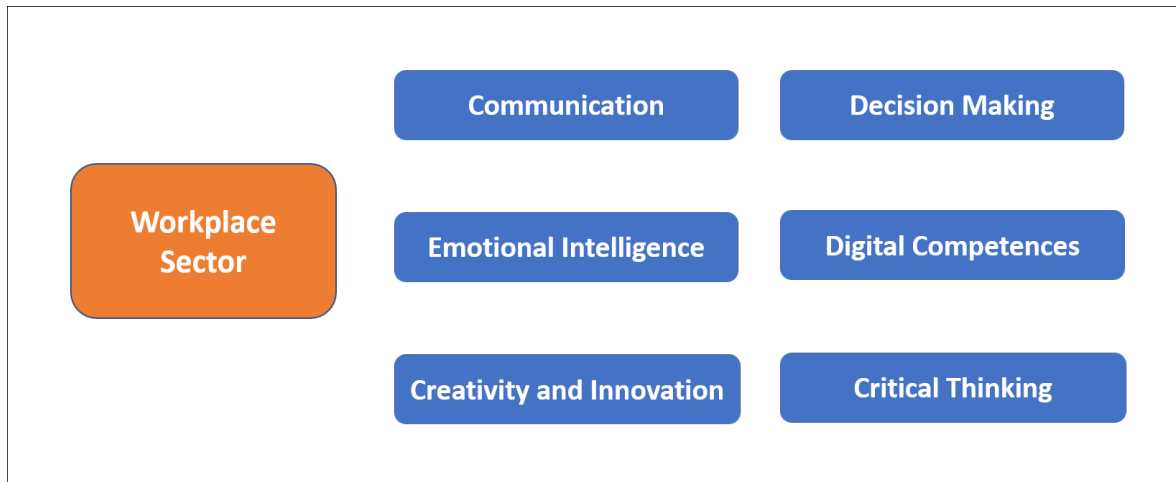


Figure 7. Soft skills most frequently targeted in the workforce. Source: Own elaboration.

Population Where the Intervention Was Applied

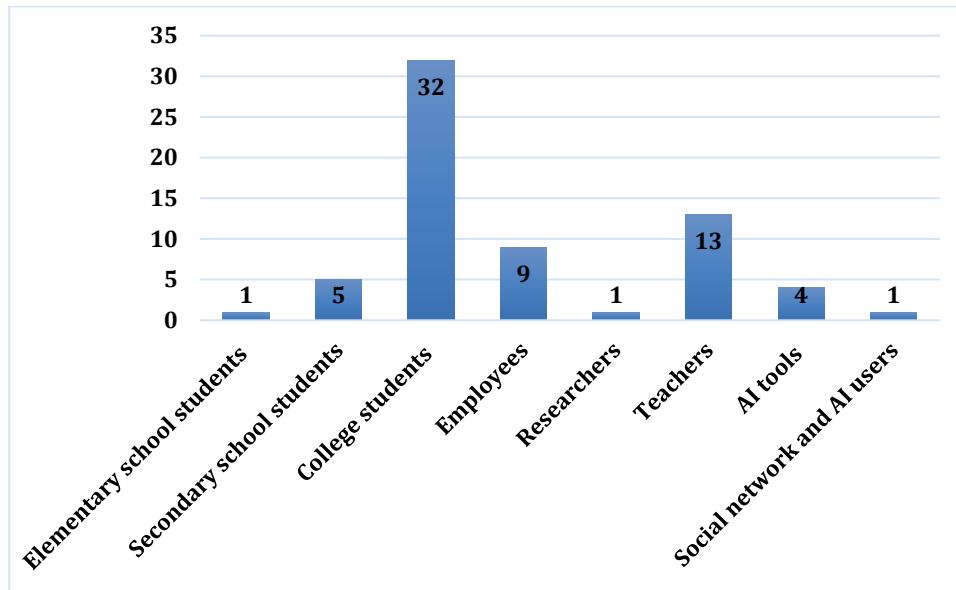


Figure 8. Population covered in the analyzed studies. Source: Own elaboration.

As shown in Figure 8, university students were the most frequently studied population, followed by teachers—primarily in higher education. This focus reflects the transitional stage that university students undergo as they enter the workforce, where soft skills are increasingly valued. As noted by Zambrano et al. (2023), human resources departments prioritize candidates who, beyond academic qualifications, possess soft skills that enable effective workplace integration. Conversely, individuals with strong academic records but limited soft skills may encounter difficulties in professional environments.

It is noteworthy that while 32 studies targeted higher education, only one intervention focused on elementary education and five on secondary education. This limited presence suggests an emerging but still underexplored interest in soft skills development at earlier educational levels. On this point, UNESCO (2024) emphasizes the need for education systems to support the development of socio-emotional competencies, given growing evidence of their impact on academic achievement, degree completion, physical and mental health, and overall well-being.

AI Technologies Employed

Understanding the relationship between soft skills and AI requires identifying the most commonly employed tools in the reviewed studies. This helps reveal how AI is being integrated into educational and workplace settings. Chatbots emerged as the most frequently used tool, likely due to their widespread popularity and accessibility (see Figure 9).

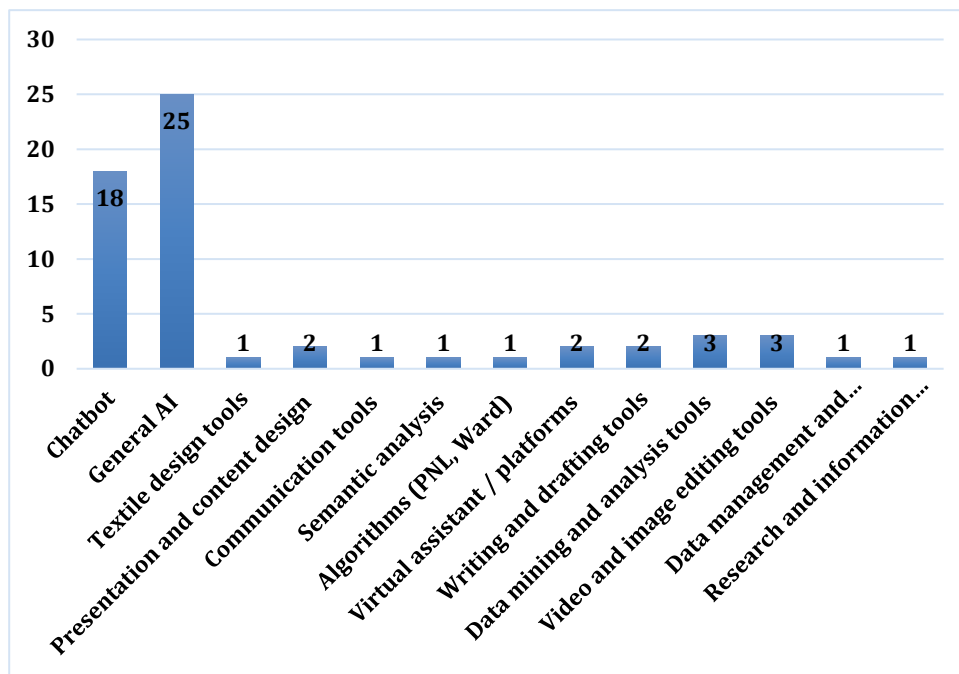


Figure 9. AI tools employed in the analyzed studies. Source: Own elaboration.

Several studies utilized multiple AI tools to align with their research objectives. These included chatbots, textile design tools, presentation and context design, communication and writing assistance, algorithms, data analysis and mining tools, video and image editing software, and platforms for information management, productivity, and research.

Study Objectives

The primary objectives of the reviewed studies were to explore how AI can support the identification, enhancement, or development of soft skills (among students, teachers, and employees). A significant number of studies focused on communication skills as a core area of investigation.

In workplace contexts, studies aimed to assess how AI could assist in identifying candidates whose soft skills and technical competencies align with job requirements. Others sought to determine which soft skills are considered most critical for development across various populations—employees, educators, researchers, and students—through AI-supported guidance in collaboration, communication, and teamwork.

In educational settings, several studies investigated the integration of soft skills into curricula via AI tools. These studies emphasized the potential of AI to enhance academic performance, motivation, autonomy, and the development of communicative competencies. In foreign language learning, AI, simulators, and virtual reality were examined for their potential to improve acquisition processes, with comparative analyses between traditional and technology-enhanced environments.

Further research explored the advantages and limitations of AI tools, including task automation and learning personalization, as well as concerns regarding ethical use and effectiveness (Ng et al., 2024). Comparative studies, such as that by Brin et al. (2023), evaluated the performance of AI systems (e.g., ChatGPT vs. GPT-4) in tasks involving communication, ethics, empathy, and professionalism.

Some researchs also assessed user perceptions of AI, their motivations, levels of digital literacy, and overall satisfaction. Additional objectives involved examining the boundaries between AI and human intelligence, user experiences, and the potential of AI as a co-participant in complex problem-solving contexts. Table 2 in the annexes provides detailed information on study objectives and interrelations.

Methodologies Employed

The studies reviewed employed quantitative, qualitative, and mixed-method approaches. Some used control groups to support hypothesis testing, while others conducted exploratory analyses, descriptive and correlational studies, or applied transversal and participatory methodologies suited to practical applications in professional settings (see Figure 10).

Data analysis methods included rating scales, semantic analysis, data processing protocols, and the Kruskal algorithm for résumé classification. Data collection instruments comprised semi-structured interviews, surveys, questionnaires, debates, and digital platforms containing project or personal information. Notably, some studies used specialized tools for recruitment processes. For instance, Kaushik et al. (2023) employed the “BharatTech Nexus Test” to evaluate candidates’ technical abilities, critical thinking, and psychological profiles. The Knapsack algorithm was also applied to optimize candidate selection based on available resources.

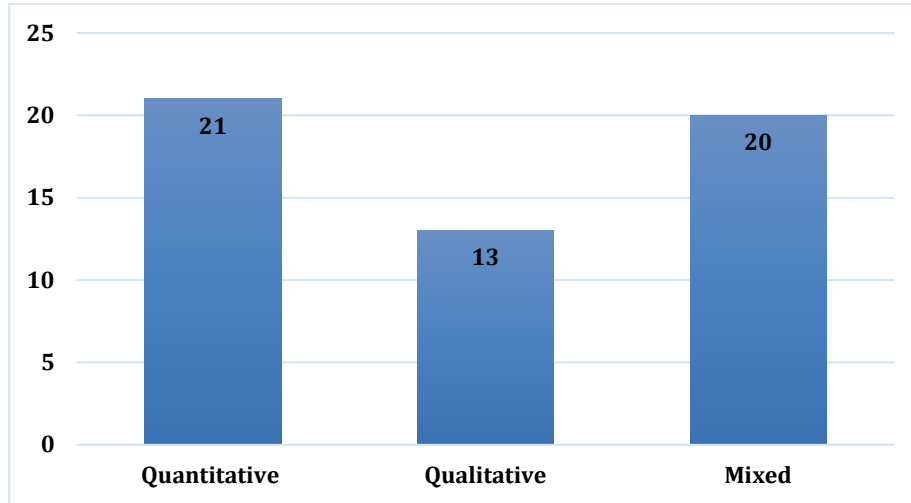


Figure 10. Types of methodologies applied in studies. Source: Own elaboration.

Key Findings from the Reviewed Articles

In the Context of Education

The articles conclude that in the education sector, AI offers significant advantages in areas such as creativity and critical thinking, particularly when compared to traditional teaching methods (Alpizar, 2024). Language learning is especially highlighted, given AI's potential for personalization, accessibility, instant feedback, progress tracking, motivation, and engagement.

Another key benefit of incorporating AI tools into teaching practice is that it allows educators to dedicate more time to fostering soft skills (SS) such as critical thinking, collaboration, communication, problem-solving, creativity, teamwork, and social skills among students. Additionally, AI contributes to the enhancement of teaching practices by automating tasks like planning, assessment, instructional material creation, and the design of more meaningful learning experiences.

While the use of AI in educational processes is generally accepted, its combination with teacher guidance improves skills development and helps reinforce personal values. According to Zúñiga (2024), humans possess capacities such as critical and reflective thinking, common sense, argumentation, and conversational ability, which make them unique. In fields such as design, even though powerful AI tools exist, they must be combined with human creativity and artistic vision. Other aspects, as noted by Qu *et al* (2024), include AI's role in identifying learning difficulties, its use in large-scale distance education systems, the benefits of teacher training in soft skills for the educational community, and the improvement of research supported by AI.

At the primary and secondary school levels, some students expressed frustration with AI due to its error rates and perceived weaknesses. The importance of SS in various human processes is also acknowledged (Marrone et al., 2024). From the perspective of teachers, training in AI management is considered a priority at these levels and key pillar for future teaching and learning. According to Anderson et al. (as cited in Acuña & Pons, 2024), teachers working in special education at the primary and secondary levels show low digital competency levels, which hinders virtual educational environments. Nonetheless, AI's potential to support students' processes remains, including the development of SS. Teachers also express significant concern over AI misuse and the dependency it may generate in students, including the risk of underdeveloping essential skills.

Generally, in these education levels, an appropriately contextualized implementation of AI could effectively foster skills such as creativity, critical thinking, problem-solving, and teamwork, compared to traditional teaching methods (Alpizar & Martínez, 2024). It is important to note the scarcity of research in elementary and secondary education, which posed a significant challenge during the search of relevant studies.

In Professional Contexts

The analysis of AI-based SS for personnel selection shows that more objective and accurate evaluations of employee capabilities can be obtained, thus identifying areas for improvement and more effective training programs. This can also contribute to a better committed and motivated workforce aligned with company values and objectives, improving recruitment efficiency, automating repetitive tasks, and enhancing candidate searches.

However, a downside of using AI lies in potential harmful effects, such as damaging employee self-confidence and the inability to identify meaningful human behavior insights during data collection, which may result in misleading outcomes in personnel assessments.

In the Context of ai Utilization

In both educational and workplace contexts, the reviewed studies found a growing knowledge of AI tools and increasing intent to use them. However, there is also a lack of trust in the outcomes, particularly in fields related to physical and mental health. For example, Bashkirova and Krpan (2024) found that more experienced mental health professionals were skeptical of AI-generated recommendations that diverged from their own assessments. In education, some students reported frustration with AI tools due to inconsistent results, errors, and

functional limitations. Chan and Tsi (2024) argue for the establishment of policies or guidelines to ensure balanced and fair AI use, addressing risks such as plagiarism and technology overuse.

A direct and positive relationship is observed between chatbot usability and user satisfaction. Additionally, the ethical use of these tools—especially in higher education—is emphasized, including maintaining academic integrity and transparency, preserving data privacy, promoting critical thinking, and advocating for responsible AI use. According to Hsu and Silalahi (2024), improper use of AI could undermine academic integrity, reduce critical thinking, and hinder the development of essential SS in university settings. Higher education institutions must therefore manage the benefits, risks, and coping strategies associated with chatbot use, particularly ChatGPT.

Chatbots also demonstrate a positive effect in higher education. Their usefulness and efficiency align with the constructivist learning theory, and the importance of engaging and effective learning tools, suggesting that educational institutions and policies should prioritize their adoption (Saihi et al., 2024).

Conclusions

Impact on the Educational Sector

In education, AI has become a key tool for individualized learning, enabling skills acquisition through innovative methodologies. According to Shumeiko and Osadcha (2024), integrating AI into higher education strengthens the SS required by IT professionals, such as assertive communication, problem-solving, negotiation, and intercultural competence. However, a significant implementation gap remains at the elementary and secondary levels, where limited research suggests the need for earlier inclusion (Isea et al., 2024).

Teachers play a fundamental role in knowledge construction, guiding AI-mediated learning. Studies highlight this through teachers' cautious attitudes toward AI, in contrast to students' more relaxed approach. Supporting this, Synekop et al. (2024) point to concerns over the originality of student work, limited critical thinking development, and potential overreliance on AI tools. This underscores the need for teacher training in digital skills and pedagogical AI use to ensure ethical and effective implementation.

There is an urgent need to establish strategies for teacher training in AI use in education and SS development, as teachers lead the practices that can benefit students. This aligns with the imperative for educational institutions at all levels to design curricula focused on SS and AI integration, equipping students for their future careers.

There is a stark difference in the number of studies targeting university populations (32) versus those focusing on secondary (5) and elementary education (1). This may reflect the limited importance attributed to SS and AI at the basic and secondary levels or the continued dominance of cognitive or technical skills at these stages. Isea et al. (2024) concluded that a significant gap exists between elementary and college education in terms of AI use for enhancing educational processes. Addressing this requires efforts to reduce teacher resistance to change, supporting a digital transformation that positively impacts teaching and learning.

Impact in the Workplace

In the workplace, SS have gained equal importance to technical skills, especially in the context of digital transformation. Ghanem (2024) argues that critical thinking is essential for preparing staff to navigate AI adoption. Similarly, Jung and Suh (2024) emphasize the need for strong interpersonal skills within the workforce to effectively interact with AI and harness its benefits for efficiency and automation.

However, the implementation of AI in this field faces ongoing challenges. While technology can improve productivity and organizational processes, it also raises concerns about workforce adaptation, role replacement, and redefining essential future skills. These challenges prompt companies to promote ongoing training and foster work environments where AI complements rather than replaces human capabilities.

Social and Cultural Impact

The development of SS through AI extends beyond education and labor, influencing social and cultural spheres. In terms of inclusion, AI can improve access to learning and facilitate diverse pedagogical strategies. However, socioemotional skills such as empathy, respect, and compassion are scarcely addressed in the reviewed literature, highlighting the need to reinforce these capacities to foster ethical and responsible digital citizenship. According to Youtricha (as cited in Medina, 2021), these skills enhance individuals' adaptability through self-esteem, empathy, and assertiveness, promoting healthy coexistence as a core component of social competence.

Furthermore, perceptions of AI vary across populations. Martínez and Petko (2024), in a study with 183 students in Switzerland, found that AI was not a determining factor in career choice, underscoring that a vocation for teaching is rooted in the intrinsic strengths of the profession, rather than in emerging technologies that may threaten the teacher's role.

Impact on Innovation

AI use in education and workplace is closely linked to innovation and the need for new teaching and learning strategies. Bee et al. (2024) highlight AI's potential in language learning through tools that offer real-time feedback. Technologies such as multimodal interactions and eye and hand tracking are particularly effective in building conversational trust, revolutionizing language learning methodologies.

Skills such as negotiation, computational thinking, and leadership were addressed in only two studies each, suggesting their undervaluation. This contrasts with authors like Martín et al. (2023), who argue that students' intrinsic motivation for learning is significantly supported by computational thinking, facilitating the use of AI-driven learning environments. Major challenges persist, including the lack of research on socioemotional skills compared to functional ones. Additionally, the geographic concentration of most studies in Europe points to the need for broader research, particularly in Latin America, where access to AI in education may face technological and structural barriers.

In the educational domain, educators express concerns regarding the linguistic originality of AI-generated content, student dependence on these tools, the constraint on developing SS like creativity and critical thinking, and broader ethical issues surrounding their use.

In conclusion, although AI presents major opportunities for identifying and enhancing SS in educational and workplace contexts, its implementation must be strategic—intended to complement, not replace these essential human skills across educational, professional, and social domains.

Limitations and Recommendations

It is especially recommended to deepen research on the importance of SS development and AI use in elementary and secondary education, as these skills are foundational to personality building and life projects. Such studies could help determine the advantages and disadvantages of AI in these levels, identify which SS benefit most, and highlight the most impactful tools. Focusing these investigations on Latin America would be particularly valuable, given the region's limited current inclusion of AI in early education. Similarly, AI could open promising pathways for working with students with disabilities or learning disorders, offering them higher-quality education that motivates and facilitates SS development, thus improving social, cultural, and technical outcomes.

Socioemotional skills are increasingly vital—they support effective interaction, emotional regulation, and resilient challenge navigation. In education, they enhance

learning, reduce dropout rates, improve coexistence, and guide life planning. In the workplace, they boost teamwork, productivity, adaptability, and leadership. Future research should thus explore how AI can strengthen these competencies.

Ethical challenges related to AI use include privacy, data protection, and responsible usage. Organizations must develop strategies to ensure data safety, algorithmic transparency, and compliance with data protection laws. To raise awareness about responsible use, organizations should provide ongoing training, including ethical protocols and respect for human rights and dignity.

Regarding academic and professional integrity—an area of concern for educators—ethical awareness around AI use must be explored, ensuring it enhances learning and thinking rather than replacing or diminishing academic and professional responsibility. Likewise, curricula should incorporate AI literacy and focus on process-based assessments that reflect both hard and soft skills development.

An appropriate, ethical, and conscious use of AI tools is recommended, ensuring independence from these technologies rather than relying on them as the sole source of information and knowledge generation. The focus should be on supporting teaching-learning processes in education and decision-making processes in the workplace. Ultimately, this systematic review aims to provide meaningful insights into the use of AI for developing and strengthening SS in today's educational and professional landscapes, with a vision of human-centered digital transformation.

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Anexos

Tabla 2. Características de los 54 estudios analizados

N.º	Título	Año	País	Objetivo	Metodología	Habilidades blandas	Población	Referencia
1	Competitive intelligence in an AI world: Practitioners' thoughts on technological advances and the educational needs of their successors	2022	United States	Investigate the educational needs of future competitive intelligence analysts in the face of current technological changes and how these affect the field of CI	Mixed	Communication, social, teamwork, adaptability and flexibility, relationship and networking to foster collaboration	University students	Freyn, S. y Hoffman, F. (2023). Competitive intelligence in an AI world: Practitioners' thoughts on technological advances and the educational needs of their successors.
2	A Proposal to Employ Artificial Intelligence Applications in Developing Prince Sattam Bin Abdulaziz University Students' Future Skills	2022	Saudi Arabia	Specify the future skills to be acquired by university students and develop a proposal that determines the requirements for the use of AI in the development of students' future skills	Quantitative	Communication, critical thinking, problem solving, adaptability and/or flexibility and/or autonomy, negotiation, digital competence	University students, Teachers	Faraj, A. (2022). A Proposal to Employ Artificial Intelligence Applications in Developing Prince Sattam Bin Abdulaziz University Students' Future Skills. <i>Education Research International</i> , 2022(1), 6433372. Doi.org/10.1155/2022/6433372
3	No worries with ChatGPT: building bridges between artificial intelligence and education with critical thinking soft skills	2023	Indonesia	Develop and validate a comprehensive model to understand the multifaceted factors that impact the acceptance and use of chatbots	Mixed	Critical thinking	University students, Researchers	Rusandi, M., Ahman, I. y Khairun, D. (2023). No hay preocupaciones con ChatGPT: construyendo puentes entre la inteligencia artificial y la educación con habilidades blandas de pensamiento crítico. <i>Journal of Public Health</i> , 45(3), e602–e603. https://doi.org/10.1093/pubmed/fdad049
4	Comparing ChatGPT and GPT-4 performance in usmle soft skill assessments	2023	United States	To evaluate and compare the performance of ChatGPT and GPT-4 on USMLE questions involving soft skills	Quantitative	Communication, social, empathy, cultural competence	University students, AI tools	Brin, D., Sorin, V., Vaid, A., Soroush, A., Glicksberg, B., Charney, A... y Klang, E. (2023). Comparing ChatGPT and GPT-4 performance in USMLE soft skill assessments. <i>Scientific Reports</i> , 13(1), 16492.

N.º	Título	Año	País	Objetivo	Metodología	Habilidades blandas	Población	Referencia
5	Competencies Needed by Business Professionals in the ai Age: Character and Communication Lead the Way	2023	United States	Identify which skills professionals consider the most important to develop in business, using generative AI	Quantitative	Communication, creativity and innovation, emotional intelligence,	Company personnel	Cardon, P., Fleischmann, C., Logemann, M., Heidewald, J., Aritz, J. y Swartz, S. (2024). Competencies needed by business professionals in the ai age: Character and communication lead the way. <i>Business and Professional Communication Quarterly</i> , 87(2), 223-246.
6	Teachers' AI digital competencies and twenty-first century skills in the post-pandemic world	2023	China	Explore the possibility of employing AI systems in education and determine what AI competencies are needed in teachers	Quantitative	Communication, teamwork, creativity and innovation/entrepreneurship, critical thinking, problem solving, leadership	Teachers	Ng, D., Leung, J., Su, J., Ng, R. y Chu, S. (2023). Teachers' AI digital competencies and twenty-first century skills in the post-pandemic world. <i>Educational technology research and development</i> , 71(1), 137-161. https://doi.org/10.1007/s11423-023-10203-6
7	The AI4Citizen pilot: Pipelining AI-based technologies to support school-work alternation programmes	2023	Italy	To specify the development of a pilot of an AI software package that allows assigning teams of students to internship programs, promoting collaborative learning and the acquisition of teamwork skills	Quantitative	Teamwork	University students	Georgara, A., Kazhamiakin, R., Mich, O. <i>et al.</i> (2023). The AI4Citizen pilot: Pipelining AI-based technologies to support school-work alternation programmes. <i>Appl Intell</i> 53, 24157–24186 (2023). https://doi.org/10.1007/s10489-023-04758-3
8	HR Functions Productivity Boost by using AI	2023	India	Emphasize the relevance of a holistic approach to identifying the most suitable candidates for HR positions, taking into account both technical and soft skills	Quantitative	Critical thinking, problem solving, decision making, emotional intelligence	Company personnel	Kaushik, P., Miglani, S., Shandilya, I., Singh, A., Saini, D. y Singh, A. (2023). HR Functions Productivity Boost by using AI. In <i>IJRITCC</i> (Vol. 11, No. 8s, pp. 701-713).
9	Artificial intelligence and inclusive e-tutoring, between soft skills and new re-search perspectives	2023	Italy	Collect data to enrich the debate on the responsible use of AI in education and analyze how e-tutors can employ AI tools within the Flipped-Inclusion model to foster systemic ecological well-being	Mixed	Communication, social, teamwork, leadership, relationship and networking skills to foster collaboration, digital competence	Teachers	De Giuseppe, T. y Tornusciolo, S. (2023). Artificial intelligence and inclusive e-tutoring, between soft skills and new research perspectives. <i>Journal of Inclusive Methodology and Technology in Learning and Teaching</i> , 3(4). https://doi.org/10.32043/jimtl.314.133
10	Recruiter's perception of artificial intelligence (AI)-based tools in recruitment	2023	No specific country	Analyze how performance and effort expectations, along with social influence, affect HR recruiters' intent when using AI technology in selection processes	Mixed	Time management, digital competence	Employees (companies or different institutions)	Horodyski, P. (2023). Recruiter's perception of artificial intelligence (AI)-based tools in recruitment. <i>Computers in Human Behavior Reports</i> , 10, 100298. https://doi.org/10.1016/j.chbr.2023.100298

N.º	Título	Año	País	Objetivo	Metodología	Habilidades blandas	Población	Referencia
11	Revolucionando el pensamiento crítico: estrategias didácticas innovadoras para estudiantes mediante la integración de inteligencia artificial	2023	Ecuador	Analyzing the impact of AI on the development of critical thinking and cognitive skills in secondary school students	Quantitativa	Critical thinking, problem solving and collaboration	High school students	Vega, R., Albarracín, E., Amores, A. y Cadena, A. (2025). Revolucionando el pensamiento crítico: estrategias didácticas innovadoras para estudiantes mediante la integración de inteligencia artificial. <i>Polo del Conocimiento</i> , 10(1), 1530-1550.
12	Enhancing Soft Skills through Generative AI in Sustainable Fashion Textile Design Education	2024	South Korea	Importance of incorporating HB training in fashion design through AI	Mixed	Communication, creativity and innovation, problem solving, digital competency	University students	Jung, D. y Suh, S. (2024). Enhancing Soft Skills through Generative AI in Sustainable Fashion Textile Design Education. <i>Sustainability</i> 2024, 16, 6973. https. doi. org/10.3390/su16166973 Academic Editors: Giulio Mario Cappelletti and Hao-Chiang Koong Lin Received, 10.
13	Shaping Tomorrow: Anticipating Skills Requirements Based on the Integration of Artificial Intelligence in Business Organizations—A Foresight Analysis Using the Scenario Method	2024	Romania	Impact of AI on workforce skill requirements as AI becomes increasingly integrated into business operations	Qualitativa	Communication, creativity and innovation/entrepreneurship, critical thinking, empathy, emotional intelligence, cultural competences	Company personnel	Bobitan, N., Dumitrescu, D., Popa, A. F., Sahljan, D. y Turlea, I. (2024). Shaping Tomorrow: Anticipating Skills Requirements Based on the Integration of Artificial Intelligence in Business Organizations—A Foresight Analysis Using the Scenario Method. <i>Electronics</i> , 13(11), 2198.
14	Does intrinsic motivation mediate perceived artificial intelligence (AI) learning and computational thinking of students during the COVID-19 pandemic?	2024	Spain	Understanding the relationship between students' intrinsic motivation to learn AI during the COVID-19 pandemic; the relationship between computational thinking and understanding of AI concepts	Quantitativa	Emotional intelligence, computational thinking	University students	Martín-Núñez, J., Ar, A., Fernández, R., Abbas, A. y Radovanović, D. (2023). Does intrinsic motivation mediate perceived artificial intelligence (AI) learning and computational thinking of students during the COVID-19 pandemic?. <i>Computers and Education: Artificial Intelligence</i> , 4, 100128.
15	Artificial Intelligence and the Transdisciplinary Human Mediation of HPTD-m	2024	Francia	Aportar información sobre los límites de la IA.	Cualitativa	Creatividad e innovación/esíritu emprendedor	Las herramientas de IA	Da, L. (2024). Artificial Intelligence and the Transdisciplinary Human Mediation of HPTD-M. <i>Transdisciplinary Journal of Engineering & Science</i> , 15.

N.º	Título	Año	País	Objetivo	Metodología	Habilidades blandas	Población	Referencia
16	Empowering Soft Skills through Artificial Intelligence and Personalised Mentoring	2024	España	Analizar cómo la integración de ChatGPT, con un tutor académico, afecta el desarrollo de HB en estudiantes universitarios	Mixta	Comunicación, Trabajo en equipo, Resolución de problemas, Gestión de información y datos	Estudiantes universitarios	González-Rico, P. y Lluch-Sintes, M. (2024). Empowering soft skills through artificial intelligence and personalized mentoring. <i>Education Sciences</i> , 14(7), 699.
17	Developing Soft Skills in the Artificial Intelligence Era: Communication, Business Writing, and Composition Skills	2024	Kuwait	Evidenciar cómo los instructores pueden ayudar a los estudiantes a desarrollar HB en un contexto donde la dependencia de herramientas de IA y modelos de lenguaje grande (LLMs) está en aumento	Cualitativa	Comunicación, Sociales, creatividad e innovación/esíritu emprendedor, pensamiento crítico, resolución de problemas, toma de decisiones, inteligencia emocional	Estudiantes universitarios	AlAfnan, M. A., Dishari, S. y MohdZuki, S. (2024). Developing Soft Skills in the Artificial Intelligence Era: Communication, Business Writing, and Composition Skills. <i>Journal of Artificial Intelligence and Technology</i>
18	Usability Study of GenAI for English Learning in VR	2024	Malasia	Determinar como con el uso de la realidad virtual y la GENAI se superan las barreras que se presentan en el aprendizaje de inglés con los entornos de aprendizaje tradicionales en la universidad	Mixta	Comunicación	Estudiantes universitarios	Bee, S., Tan., S., Hoi, Ong., K., Huat, T., Thein, L., Sharimila, B. y Pandurenga, R. (2024). Usability Study of GenAI for English Learning in VR. <i>Revista de Ciencias Sociales y de la Vida de Pakistán</i> , 22(2), 7367 - 7382. https://doi.org/10.57239/PJLSS-2024-22.2.00556
19	Objectivity by design: The impact of ai-driven approach on employees' soft skills evaluation	2024	Sin país específico	Presentar un nuevo enfoque impulsado por IA para evaluar las habilidades interpersonales de los empleados, a través del análisis de datos recopilados de repositorios de proyectos del mundo real	Cuantitativa	Comunicación, sociales, trabajo en equipo, toma de decisiones	Personal de empresas	Gafni, R., Aviv, I., Kantsepolsky, B., Sherman, S., Rika, H., Itzkovich, Y. y Barger, A. (2024). Objectivity by design: The impact of AI-driven approach on employees' soft skills evaluation. <i>Information and Software Technology</i> , 170, 107430. https://doi.org/10.1016/j.infsof.2024.107430
20	Understanding Student Perceptions of Artificial Intelligence as a Teammate	2024	Australia	Explorar las percepciones y experiencias de los estudiantes al trabajar con el apoyo de la ia en un contexto de resolución de problemas complejos	Mixta	Comunicación, trabajo en equipo, resolución de problemas	Estudiantes de secundaria	Marrone, R., Zamecnik, A., Joksimovic, S., Johnson, J. y De Laat, M. (2024). Understanding student perceptions of artificial intelligence as a teammate. <i>Technology, Knowledge and Learning</i> , 1-23. https://doi.org/10.1007/s10758-024-09780-z
21	What motivates future teachers? The influence of Artificial Intelligence on student teachers' career choice	2024	Suiza	Exploring whether AI-related considerations play a role in student teachers' decision to become teachers	Cuantitativa	Social, digital competence	University students	Martínez-Moreno, J. y Petko, D. (2024). What motivates future teachers? The influence of Artificial Intelligence on student teachers' career choice. <i>Computers and Education: Artificial Intelligence</i> , 7, 100296. https://doi.org/10.1016/j.caeai.2024.100296

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22	To fear or not to fear-Human resource development professionals' positioning towards artificial intelligence with a focus on augmentation	2024	Germany	Contribute to a better understanding of the AI implementation process in HRD and education in general	Quantitative	Communication, teamwork, problem solving, digital competence	Company personnel	Guggemos, J. (2024). To fear or not to fear-Human resource development professionals' positioning towards artificial intelligence with a focus on augmentation. <i>Computers and Education: Artificial Intelligence</i> , 7, 100260. https://doi.org/10.1016/j.caeai.2024.100260
23	Empowering urban futures: Key competencies for smart city resilience officers	2024	Greece	Explore the responsibilities and competencies required for the role of Smart Cities Resilience Officer (SCRO)	Mixed	Communication, social, teamwork, critical thinking, problem solving, decision making, emotional intelligence	Employees (companies or different institutions)	Tsoutsas, P., Panagiotakopoulos, T., Damasiotis, V. y Fitsilis, P. (2024). Empowering urban futures: Key competencies for smart city resilience officers. <i>Urban Governance</i> , 4(3), 180-192. https://doi.org/10.1016/j.ugj.2024.07.001
24	A Structural equation modeling analysis of generative ai chatbots adoption among students and educators in higher education	2024	United Arab Emirates	Analyzing the adoption of AI-based chatbots in higher education among students and educators	Mixed	Communication, social, teamwork, digital competences	University students, Teachers	Saihi, A., Ben-Daya, M., Hariga, M. y As'ad, R. (2024). A Structural equation modeling analysis of generative AI chatbots adoption among students and educators in higher education. <i>Computers and Education: Artificial Intelligence</i> , 7, 100274. https://doi.org/10.1016/j.caeai.2024.100274
25	The impact of ChatGPT on human skills: A quantitative study on twitter data	2024	Italy	Understand the impact of ChatGPT on human skills by identifying the skills it affects and how users react to this impact	Quantitative	Communication, teamwork, creativity and innovation/entrepreneurial spirit	Social network users, or AI	Giordano, V., Spada, I., Chiarello, F., y Fantoni, G. (2024). The impact of ChatGPT on human skills: A quantitative study on twitter data. <i>Technological Forecasting and Social Change</i> , 203, 123389. https://doi.org/10.1016/j.techfore.2024.123389
26	Towards human-ai collaboration in the competency-based curriculum development process: The case of industrial engineering and management education	2024	Italy	Identify how AI can contribute to the definition of a competency-based curriculum in industrial engineering and management	Quantitative	Communication, teamwork, adaptability and/or flexibility and/or autonomy, digital competence, information and data management	University students	Padovano, A. y Cardamone, M. (2024). Towards human-AI collaboration in the competency-based curriculum development process: The case of industrial engineering and management education. <i>Computers and Education: Artificial Intelligence</i> , 7, 100256. https://doi.org/10.1016/j.caeai.2024.100256

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27	Exploring the paradoxical use of ChatGPT in education: Analyzing benefits, risks, and coping strategies through integrated utaut and pmt theories using a hybrid approach of sem and fsQCA	2024	Taiwan	To examine the benefit-risk relationship of ChatGPT use in educational settings mediated by integrating the frameworks of unified technology acceptance and use theory and protective motivation theory	Mixed	Communication, critical thinking, problem solving	University students	Hsu, W. y Silalahi, A. (2024). Exploring the paradoxical use of ChatGPT in education: Analyzing benefits, risks, and coping strategies through integrated UTAUT and PMT theories using a hybrid approach of SEM and fsQCA. <i>Computers and Education: Artificial Intelligence</i> , 7, 100329. https://doi.org/10.1016/j.caeai.2024.100329
28	Bridging technology and pedagogy from a global lens: Teachers' perspectives on integrating ChatGPT in English language teaching	2024	Saudi Arabia	To determine how English teachers perceive the pedagogical opportunities offered by the incorporation of ChatGPT in their teaching methodologies	Qualitative	Communication, creativity and innovation/entrepreneurship, adaptability and/or flexibility and/or autonomy, emotional intelligence	Teachers	Al-khresheh, M. (2024). Bridging technology and pedagogy from a global lens: Teachers' perspectives on integrating ChatGPT in English language teaching. <i>Computers and Education: Artificial Intelligence</i> , 6, 100218. https://doi.org/10.1016/j.caeai.2024.100218
29	Confirmation bias in ai-assisted decision-making: ai triage recommendations congruent with expert judgments increase psychologist trust and recommendation accept	2024	England	To analyze the impact of the congruence between the IA recommendation and the psychologists' preliminary diagnosis on the likelihood that psychologists will accept and integrate the recommendation in their final decision	Quantitative	Communication, decision making, digital competence	University students, Employees (companies, or different institutions)	Bashkirova, A. y Krpan, D. (2024). Confirmation bias in AI-assisted decision-making: AI triage recommendations congruent with expert judgments increase psychologist trust and recommendation acceptance. <i>Computers in Human Behavior: Artificial Humans</i> , 2(1), 100066. https://doi.org/10.1016/j.chbah.2024.100066
30	Application of artificial intelligence in higher education institutions for developing soft skills of future specialists in the sphere of information technology	2024	Slovakia	Specify the role of AI in developing the soft skills of future IT professionals	Mixed	Communication, problem-solving, negotiation, cultural competency	University students	Shumeiko, N. y Osadcha, K. (2024). Application of artificial intelligence in higher education institutions for developing soft skills of future specialists in the sphere of information technology. In <i>Journal of Physics: Conference Series</i> (Vol. 2871, No. 1, p. 012027). IOP Publishing. 10.1088/1742-6596/2871/1/012027
31	Use of Chat GPT in English for Engineering Classes: Are Students' and Teachers' Views on Its Opportunities and Challenges Similar?	2024	Ukraine	To investigate and compare the attitudes of technical college students and teachers toward the use of ChatGPT in English classes, as well as their perspectives on academic integrity issues and the strategies	Quantitative	Communication, research and/or inquiry and/or critique, digital competency	University students, Teachers, AI tolos	Synekop, O., Lytovchenko, I., Lavrysh, Y. y Lukianenko, V. (2024). Use of Chat GPT in English for Engineering Classes: Are Students' and Teachers' Views on Its Opportunities and Challenges Similar?. <i>International Journal of Interactive Mobile Technologies</i> , 18(3).

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				they employ when using ChatGPT				https://doi.org/10.3991/ijim.v18i03.45025
32	Transformación educativa: inteligencia artificial en la mejora de la calidad y la tutoría electrónica.	2024	Spain	To identify soft competencies, which come from an analysis of the competencies and roles of e-tutors in a non-face-to-face higher education institution	Qualitative	Communication, social, empathy	University students	Fuentes, J. y De la Muela, A. (2024). Transformación Educativa: explorando el papel de la inteligencia artificial en la mejora de la calidad y la tutoría virtual. <i>Edeania: estudios y propuestas socio-educativas</i> , (65), 8. https://doi.org/10.46583/edetania_2024.65.1137
33	Influence of Internal Auditor Soft and Hard Skills on the Adoption of Artificial Intelligence Subsets	2024	Saudi Arabia	Examine how internal auditors' HBs and HHs influence the adoption of the subset of AI, data mining and data analytics	Quantitative	Communication, critical thinking	Employees (companies or different institutions)	Ghanem, M. (2024). Influence of Internal Auditor Soft and Hard Skills on the Adoption of Artificial Intelligence Subsets. 90-44,(2)11, <i>Investigación contable</i> . 10.21608/abj.2024.362280
34	Hard and Soft Skills Revisited: Journalism Education at the Dawn of Artificial Intelligence	2024	Kuwait	Explore how instructors can help students develop soft skills in communication, business writing, and composition in the age of AI	Quantitative	Communication, teamwork, critical thinking	University students	Dinçer, E. (2024). Revisión de las habilidades duras y blandas: la educación periodística en los albores de la inteligencia artificial. <i>Adnan Menderes Üniversitesi Sosyal Bilimler Enstitüsü Dergisi</i> , 11(1), 65-78. https://doi.org/10.30803/adusobed.1462061
35	Undergraduate' Perspectives on the Significance of Soft Skills for Employment	2024	Morocco	To analyze university students' perception of HBs and their views on which are the most fundamental to enhance employability in the context of AI growth	Quantitative	Communication, teamwork, time management	University students	Aziz, S., Harrizi, M., Loutfi, A. y Zaidoune, S. (2024). Undergraduates' Perspectives on the Significance of Soft Skills for Employment: Gender-Based Differences. <i>Journal of Education in Muslim Societies</i> 6(1), 3-31. https://dx.doi.org/10.2979/jems.00014.10.2979/jems.00014
36	The role of artificial intelligence literacy and innovation mindset in shaping nursing students' career and talent self-efficacy	2024	Egypt	To analyze how artificial intelligence literacy moderates the relationship between an innovative mindset and professional and talent self-efficacy in nursing students	Quantitative	Creativity and innovation/entrepreneurship, critical thinking, adaptability and/or flexibility and/or autonomy, digital competence	University students	El-Sayed, B., El-Sayed, A., Alsenany, S. y Asal, M. (2024). The Role of Artificial Intelligence Literacy and Innovation Mindset in Shaping Nursing Students' Career and Talent Self-Efficacy. <i>Nurse Education in Practice</i> , 104208. https://doi.org/10.1016/j.nepr.2024.104208

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37	The role of video games in enhancing managers' strategic thinking and cognitive abilities: An experiential survey	2024	Iran	To identify the role of video games for the improvement of managers' strategic thinking and their possible contribution to the development of cognitive skills	Mixed	Creativity and innovation/entrepreneurship, critical thinking	University students	Ghasemi, O., Abooyee, M., Labafi, S. y Shirzad, M. (2024). The role of video games in enhancing managers' strategic thinking and cognitive abilities: An experiential survey. <i>Entertainment Computing</i> , 50. https://doi.org/10.1016/j.entcom.2024.100694
38	The mediating effects of critical thinking on the motivation and creativity of Business English learners in the age of AI: Cognitive flexibility theory	2024	China	To analyze the structural relationship between learning motivation, critical thinking, and creativity in business English learners in the AI era	Quantitative	Creativity and innovation/entrepreneurship, critical thinking, adaptability and/or flexibility and/or autonomy	University students	Lijie, H., Kun, T., Leng, C. y Salleh, U. (2024). The mediating effects of critical thinking on the motivation and creativity of business english learners in the age of AI: Cognitive flexibility theory. <i>Thinking Skills and Creativity</i> , 53, 101578. https://doi.org/10.1016/j.tsc.2024.101578
39	Will generative ai replace teachers in higher education? A study of teacher and student perceptions	2024	China	Evaluate the potential of generative AI in higher education, entering into the ability to replace teachers	Mixed	Communication, creativity and innovation/entrepreneurship, critical thinking, adaptability and/or flexibility and/or autonomy, emotional intelligence, research and/or inquiry and/or criticism	University students, Teachers	Chan, C. y Tsi, L. (2024). Will generative AI replace teachers in Higher Education? A study of teacher and student perceptions. <i>Studies in Educational Evaluation</i> , 83, 101395. https://doi.org/10.1016/j.stueduc.2024.101395
40	Docentes ante la inteligencia artificial en una universidad pública del norte del Perú	2024	Peru	To explore the views, concerns, difficulties and facilitators of integrating AI into academic activities at the university in Peru	Qualitative	Communication, time management, digital competence	Teachers	Bernilla-Rodríguez, (2024). Docentes ante la inteligencia artificial en una universidad pública del norte del Perú. <i>Educación</i> , 33(64), 8-28. https://doi.org/10.18800/educacion.202401.M001
41	Generic skills of educators to prevent youth discomfort. A training experience in Europe	2024	Chile	Explore the importance of empathy, active listening, critical thinking and digital skills, for teachers, to prevent youth distress and extremism	Qualitative	Communication, empathy, digital competence, cultural competence	Teachers	Guerrini, V., (2024). Generic skills of educators to prevent youth discomfort. A training experience in Europe. <i>Perspectiva Educacional, Formación de Profesores</i> , 63(2), 132-154. 10.4151/07189729-Vol.63-Iss.2-Art.1578

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42	Implementación de la inteligencia artificial en la universidad para aprender a realizar campañas publicitarias	2024	Spain	Develop a series of resources that enable the creation of AI-assisted advertising campaigns with university students	Qualitative	Communication, teamwork, creativity and innovation/entrepreneurial spirit	University students	Sánchez, Á. (2024). Implementación de la Inteligencia Artificial en la universidad para aprender a realizar campañas publicitarias. <i>Hachetepepe</i> . Revista científica de educación y comunicación, (28), 1-14. 10.25267/Hachetepepe.2024.i28.1106
43	Transformación educativa: inteligencia artificial en la mejora de la calidad y la tutoría electrónica	2024	Spain	Identify how AI improves quality and tutoring in non-face-to-face higher education, which allows complementing soft skills in e-tutoring	Qualitative	Digital competence, computational thinking, information and data management	University students	Fuentes, J. y De la Muela, A. (2024). Transformación Educativa: explorando el papel de la inteligencia artificial en la mejora de la calidad y la tutoría virtual. <i>Edetania: estudios y propuestas socio-educativas</i> , (65), 8. https://doi.org/10.46583/edetania_2024.65.1137
44	ChatGPT como recurso de asistencia en la gestión pedagógica	2024	Ecuador	Develop a teacher training workshop on the use of ChatGPT to improve pedagogical management	Mixed	Communication, digital competence	Teachers	Clavijo, J., Barberán, F., Muñoz, W. y Gómez-Rodríguez, V. (2024). ChatGPT como recurso de asistencia en la gestión pedagógica. <i>Código Científico Revista de Investigación</i> , 5(E4), 338-351. https://doi.org/10.55813/gaea/cricri/v5/nE4/497
45	Disciplinary differences in undergraduate students' engagement with generative artificial intelligence	2024	Singapore	Examine undergraduate students' GenAI knowledge, intent to use, and participation in specific assignments across academic disciplines	Mixed	Teamwork, critical thinking, problem solving, adaptability and/or flexibility and/or autonomy	University students	Qu, Y., Tan, M. y Wang, J. (2024). Disciplinary differences in undergraduate students' engagement with generative artificial intelligence. <i>Smart Learning Environments</i> , 11(1), 51. https://link.springer.com/article/10.1186/s40561-024-00341-6
46	Análisis de la inteligencia artificial en la transformación de la enseñanza y aprendizaje educativa	2024	Venezuela	To analyze the use of AI as a tool to dynamize teaching processes in the Venezuelan education system	Qualitative	Critical thinking, adaptability and/or flexibility and/or autonomy, digital competence	Teachers	Isea Arguelles, J., Duque Rodríguez, J. A., Piña Ferrer, L. y Atencio-González, R. E. (2024). Análisis de la Inteligencia artificial en la transformación de la enseñanza y aprendizaje educativa. <i>Conrado</i> , 20(100), 179-185. http://scielo.sld.cu/pdf/rc/v20n100/1990-8644-rc-20-100-179.pdf

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47	El impacto de ChatGPT en la formación y producción académica	2024	Mexico	Test Chatgpt by introducing promtp, related to the originality of its products and academic plagiarism to then be examined to determine its effect on the process of training and academic production in higher education	Mixed	Communication, critical thinking, research and/or inquiry and/or critique	AI tools	Zúñiga-Sánchez, O. (2024). El impacto de ChatGPT en la formación y producción académica: que no cunda el pánico. RIDE. Revista Iberoamericana para la Investigación y el Desarrollo Educativo, 14(28). https://doi.org/10.23913/ride.v14i28.1867
48	El uso de aplicaciones de Inteligencia Artificial para el aprendizaje de idiomas en la Educación Superior	2024	Ecuador	To support the use of AI in language teaching in higher education to improve the learning experience, academic performance, motivation, student autonomy and its contribution to the development of linguistic and communicative skills	Mixed	Communication, critical thinking, problem-solving, adaptability and/or flexibility and/or autonomy	University students, Teachers	Amén-Mora, P. (2024). El uso de aplicaciones de Inteligencia Artificial para el aprendizaje de idiomas en la Educación Superior. Serie Científica de la Universidad de las Ciencias Informáticas, 17(2), 192-205. http://scielo.sld.cu/scielo.php?pid=S2306-24952024000200192&script=sci_abstract
49	La inteligencia artificial y su utilidad en el campo académico. Un análisis desde la perspectiva del universitario	2024	Ecuador	To propose an innovative methodological framework for teaching Artificial Intelligence in Computer Engineering."	Qualitative	Critical thinking, problem solving, digital competences	University students	Quinde-Rosales, V., García-Estupiñán, S. B. y Tenelanda-Mora, D. (2024). La Inteligencia Artificial y su utilidad en el campo Académico. Un Análisis desde la perspectiva del Universitario. Revista Conrado, 20(99), 187-193. http://scielo.sld.cu/pdf/rc/v20n99/1990-8644-rc-20-99-187.pdf
50	Perspectiva de estudiantes de nivel medio superior respecto al uso de la inteligencia artificial generativa en su aprendizaje	2024	Mexico	To document the perception of high school students towards the use of generative AI in the classroom, in a way that favors learning	Quantitative	Creativity and innovation/entrepreneurship, critical thinking	High school students	Alpizar-Garrido, L. y Martínez-Ruiz, H. (2024). Perspectiva de estudiantes de nivel medio superior respecto al uso de la inteligencia artificial generativa en su aprendizaje. RIDE. Revista Iberoamericana para la Investigación y el Desarrollo Educativo, 14(28).
51	The impact of digital technologies on the effectiveness of English language learning by medical students	2024	Ucrania	To evaluate the effectiveness of the use of modern digital technologies in learning another language in medical students and to analyze their personal attitude during the experiment	Mixed	Communication, adaptability and/or flexibility and/or autonomy, digital competence	University students, Teachers	Levitskaia, A. (2024). The impact of digital technologies on the effectiveness of English language learning by medical students. Revista Conrado, 20(97), 52-60. https://doi.org/10.34069/AI/2023.71.11.25

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52	Uso de ChatGPT por estudiantes universitarios: un análisis relacional	2024	Colombia	To study the relationship between usability and satisfaction in university students using ChatGPT	Quantitative	Teamwork, creativity and innovation/entrepreneurship, critical thinking, research and/or inquiry and/or criticism	University students	Gil-Vera, V. (2024). Uso de ChatGPT por estudiantes universitarios: un análisis relacional. <i>Formación universitaria</i> , 17(5), 129-138. http://dx.doi.org/10.4067/S0718-50062024000400129
53	Inteligencia artificial y competencia comunicativa: desafíos en el curso de Comunicación	2024	Peru	To determine how AI relates to the communicative competence of the communication course in high school students	Quantitative	Communication	High school students	Pérez, H. (2024). Inteligencia artificial y competencia comunicativa: desafíos en el curso de Comunicación. <i>Lengua y Sociedad</i> , 23(2), 692.
54	Aplicación de la Inteligencia Artificial (IA) en Educación: los beneficios y limitaciones de la IA percibidos por el profesorado de educación primaria, educación secundaria y educación superior	2024	Spain	To know which are the main benefits and limitations that teachers of elementary education, secondary education and higher education detect regarding the use of artificial intelligence in education	Mixed	Critical thinking and problem solving	Students of Primary, secondary and university students	Delgado, N., Carrasco, L. C. de la., Maza, M. y Etxabe-Urbieta, J. (2024). Aplicación de la Inteligencia Artificial (IA) en Educación: Los beneficios y limitaciones de la IA percibidos por el profesorado de educación primaria, educación secundaria y educación superior. <i>Revista electrónica interuniversitaria de formación del profesorado</i> , 27(1), 207-224.

Fuente: elaboración propia