Journal of Infrastructure, Policy and Development 2024, 8(15), 8546.
https://doi.org/10.24294/jipd8546

Article

New entrants joining the industry, what skill do they need?

Diena Dwidienawati[1,*], Cornelia Istiani[2], Rizqi Rahman[1]

[1] Business Management Program, Bina Nusantara University, Palmerah Jakarta 11480, Indonesia
[2] Psychology Department, Bina Nusantara University, Palmerah Jakarta 11480, Indonesia
*** Corresponding author:** Diena Dwidienawati, diena.t@binus.edu

CITATION

Dwidienawati D, Istiani C, Rahman R. (2024). New entrants joining the industry, what skill do they need?. Journal of Infrastructure, Policy and Development. 8(15): 8546. https://doi.org/10.24294/jipd8546

ARTICLE INFO

Received: 13 August 2024
Accepted: 22 October 2024
Available online: 12 December 2024

Abstract: This study investigates the critical skills required for new entrants to succeed in today's workforce, focusing on both soft and hard skills. Through a comprehensive systematic review of existing literature using the PRISMA method, we analyzed 12 selected journals from an initial pool of 870, sourced from major databases such as Scopus, Science Direct, and Emerald Insight. Our research uncovers four key insights. First, we provide a clear and precise definition of employability skills, establishing the foundation for what competencies are essential for workforce readiness. Second, our analysis identifies a distinct separation between soft and hard skills, with soft skills such as communication, problem-solving, teamwork, ethics, and leadership being universally critical across all industries. Third, while soft skills have broad applicability, hard skills are highly specialized, varying significantly depending on industry and job role. To simplify their understanding and application, we categorized these hard skills into specific groups. Finally, the study highlights the urgent need for further empirical research to validate these findings in real-world settings, as the current conclusions are drawn solely from literature. This potential gap between academic preparation and industry expectations underscores the necessity for ongoing collaboration between educational institutions and employers, which will be a primary focus of our future research.

Keywords: employability skills; soft skills; hard skills; employee; employer; job requirement

1. Introduction

The modern job market is becoming increasingly competitive, with challenges that extend beyond formal qualifications to include the ability to adapt to rapidly changing industry demands (Innerhofer et al., 2024). This disconnect between educational outcomes and industry needs has led to growing skepticism about the value of higher education, as public confidence in its ability to secure meaningful employment continues to decline (Clark et al., 2024). For instance, nearly half of college graduates find themselves underemployed, working in positions that do not require the skills they acquired during their studies. This situation is further exacerbated by a shortage of skilled workers in critical sectors such as manufacturing and automotive, leading to an oversupply of underutilized educated workers, while simultaneously leaving key industry demands unmet (Hopewell et al., 2024; Mekonnen et al., 2024; Monye et al., 2023; Raghunath et al., 2023). As a result, industries face talent shortages in vital technical roles, whereas graduates struggle to secure positions that match their skill levels (Clauss et al., 2024; Huang et al., 2023; Lasso et al., 2023; Rikala et al., 2024).

Adding to this complexity is the evolution of entry-level roles, which were traditionally seen as a "rite of passage" to a stable career but have now shifted to encompass more advanced skills and competencies (O'Boyle et al., 2017). These

positions, once centered around basic, repetitive tasks, now require proficiency in data analysis, technology, and problem-solving, reflecting broader changes in employer expectations. Even new entrants are now expected to have capabilities aligned with the demands of an increasingly digitalized workforce, further complicating the existing gap between educational output and industry requirements (O'Boyle et al., 2017). This shift exacerbates the issue of educational mismatches and underemployment, as many graduates find themselves inadequately prepared to meet these new expectations.

The COVID-19 pandemic has further accelerated digital transformation across various sectors, particularly in industries such as construction, where new skill requirements emerged almost overnight (Hung et al., 2023). Yet, many workers and job seekers remain unprepared to meet these new demands, intensifying the urgency to address the widening gap between educational training and industry needs (Gawrycka et al., 2020). As industries shift towards digitalization and automation, the misalignment between educational outcomes and evolving requirements can significantly hinder workforce readiness and, ultimately, economic growth (Laguna-Sánchez et al., 2020). Although previous research has explored these mismatches, most studies are either limited to specific sectors or focus on macro-level impacts without examining the interconnected factors that contribute to skill gaps and educational mismatches (Huang et al., 2023; Rikala et al., 2024).

Despite the growing interest in understanding these phenomena, there remains a lack of comprehensive frameworks that integrate insights across different types of mismatches—whether they be skill gaps, human capital mismatches, or educational mismatches. Moreover, while the impact of educational mismatches on wages has been well-documented, the nuances of how these mismatches manifest differently across industries and contribute to broader issues, such as gender disparities, remain underexplored (Lasso-Dela-Vega et al., 2023). This study aims to address these research gaps by conducting a systematic review using the PRISMA method to identify key competencies valued by employers. The findings seek to inform both educational institutions and industry stakeholders, providing actionable insights that help bridge the gap between education and industry needs. This alignment will ensure that new entrants are better equipped to meet the demands of today's dynamic workforce, thereby enhancing industry resilience in an increasingly volatile market.

Research question

The research is guided by the following questions:

RQ1: What is the definition of employability skill?

RQ2: What are the definitions and distinctions between soft skills and hard skills?

RQ3: What are the commonly required soft skills in the workplace?

RQ4: How are commonly required hard skills categorized?

RQ5: Which skill set—soft skills or hard skills—is considered the most critical for career success?

2. Literature review

2.1. Resource-based view (RBV) and human capital strategy

Resource-based view (RBV) highlights the importance of leveraging internal resources to achieve and sustain competitive advantage. According to a study, resources that are valuable, rare, inimitable, and non-substitutable (VRIN) serve as the foundation for a firm's competitive strength (Barney, 2021). Human capital, which includes the skills, knowledge, and abilities possessed by employees, is a critical strategic resource that organizations must optimize to achieve superior performance (Lubis, 2022). RBV suggests that organizations should strategically manage their human capital to maximize the potential of their internal capabilities, which can be accomplished through effective recruitment, development, and retention strategies (van Woerkom et al., 2024).

2.2. Human capital deployment and person-job fit

Strategic human capital management involves aligning employees' competencies with the demands of their roles to ensure optimal performance, a concept known as person-job fit. Person-job fit not only enhances job satisfaction and organizational commitment but also improves overall firm performance (Farooqui and Nagendra, 2014). According to RBV, effective person-job fit enables firms to capitalize on their human resources by placing employees in roles that leverage their unique skills, thereby increasing the value of these resources and contributing to competitive advantage (Barney, 2021). This alignment also allows firms to respond dynamically to changing industry demands and maintain their strategic position (Sirmon et al., 2011).

2.3. Skill mismatch in the context of industry requirements

Skill mismatch refers to the gap between the skills possessed by employees and those required by the industry. This issue can lead to decreased productivity, lower employee engagement, and diminished organizational performance. Addressing skill mismatch is crucial for maintaining the strategic alignment between an organization's internal capabilities and external demands (Sudibjo and Prameswari, 2021). From an RBV perspective, organizations must focus on developing and reallocating internal resources to bridge the skill gap and ensure that their human capital remains relevant and competitive (Sirmon et al., 2011). This strategic approach allows firms to enhance employee performance and align with the evolving needs of the industry (Lubis, 2022).

2.4. Resource orchestration for strategic human capital management

Resource orchestration is a concept derived from RBV that refers to the processes of structuring, bundling, and leveraging internal resources to achieve competitive advantage (Sirmon et al., 2011). Within the context of human capital management, resource orchestration involves dynamically managing employee skills and capabilities to match strategic objectives and respond to shifts in market demands (Barney, 2021). By applying resource orchestration, organizations can enhance the value of their human resources and address skill mismatches more effectively (Lubis, 2022). Additionally, resource orchestration allows firms to maintain flexibility and

adaptability in dynamic environments, ensuring that their human capital is always aligned with strategic goals (van Woerkom et al., 2024).

3. Materials and methods

3.1. Exploration plan

To conduct this study, the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) systematic review method was utilized. PRISMA is a guideline used in qualitative research, particularly in systematic literature reviews and meta-analyses. It serves as a guideline on how to report research findings transparently and systematically, ensuring that all presented information is relevant, clear, and complete. This method ensures a transparent and reproducible approach to identifying, selecting, and critically appraising relevant research literature (Liberati et al., 2009).

3.2. Qualification and data sources

This study utilizes data from three major databases—Scopus, Science Direct, and Emerald Insight—without imposing restrictions on publication years. Scopus is a comprehensive database that spans numerous scientific fields, providing robust tools for tracking, analyzing, and visualizing research. Science Direct is a leading resource for articles in science, technology, and medicine, offering access to a wide range of high-quality research papers. Emerald Insight, on the other hand, specializes in management, business, education, and library studies, presenting peer-reviewed research that bridges theoretical insights with practical applications. The decision not to limit publication years was made to accommodate the relatively limited number of studies on the required entry-level skills, ensuring a comprehensive understanding of the topic without disregarding relevant older literature.

3.3. Search terms and rules

The purpose of this study is to determine the skills required by new entrants entering the workforce. Therefore, we used a combination of keywords to source relevant journals. The search terms used were “required skill” and “new entrants,” “required skill” and “new entry,” and “required skill” and “entry level”. The search period is all years.

3.4. Selection criteria

The selection criteria used in this study are as follows. First, the study only includes articles that are available through open access. This criterion was chosen due to limited resource availability, ensuring that all necessary information is accessible without restrictions. Second, duplicate articles were excluded from the selection to avoid redundancy and ensure that each article contributes unique and valuable information to the study. Third, the study focuses on articles that use quantitative or mixed methods, as these approaches provide more generalizable results compared to qualitative methods, allowing for a broader understanding of the research findings. Lastly, articles were selected based on their contextual relevance, emphasizing studies

that address both hard skills and soft skills, ensuring that the research is aligned with the core objectives and context of the study.

3.5. Data and process collection

Data collection and processing were organized using Excel. A tabulated literature review was created to manage the information systematically. The table comprises details such as the paper title, authors, affiliated university, country, year of publication, journal, study design, analysis method, relevant industry, the relationship of each variable, and the research outcomes. The relevancy of each journal was reviewed by reading the abstracts, and the findings were recorded in the Excel sheet. The review process involved three researchers to ensure accuracy and reliability in the assessment. The collaborative approach helped in cross-verifying the relevance and quality of the selected journals.

3.6. Technique analysis

The gathered information is put away in excel worksheet and analyzed based on relevancy of the topic.

4. Results and discussion

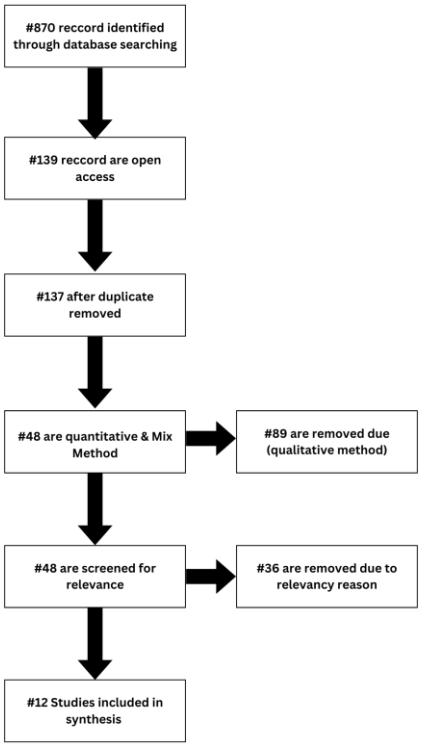

Figure 1. PRISMA systematic review.

The findings of a comprehensive review of twelve journals, which were obtained through the PRISMA literature review process as outlined in **Figure 1**, have identified four primary categories of topics. Firstly, there is the elucidation of the definition of employability skills. Secondly, there is an examination of the definition and distinction

between soft skills and hard skills. Thirdly, there are the commonly required soft skills. Lastly, there is the clustering of commonly required hard skills.

4.1. Definition of employability skill

4.1.1. Key definition of employability skill

The terminology of employability is discussed in four publications (**Table 1**) (Hosain et al., 2023; Kenayathulla et al., 2019; Yusoff et al., 2012; Zaharim et al., 2012).

Table 1. Key definition of employability skills.

Key Definition of Employability Skills	Journal
A skill set encompassing a range of abilities essential for securing, retaining, and excelling in employment, comprising a blend of soft skills and personal knowledge crucial for workforce preparedness.	Zaharim et al., 2012
The attributes, knowledge, capabilities, and abilities of a graduate, often not immediately observable, which they must demonstrate effectively, including the capacity to solve real-world problems and create a distinct profile tailored for the competitive job market.	Yusoff et al., 2012
The collective set of skills, qualities, and competencies that individuals possess to enhance their prospects for obtaining and maintaining employment, encompassing both technical proficiencies and interpersonal skills, with an emphasis on ongoing skill development.	Kenayathulla et al., 2019
The collection of skills and abilities graduates acquire to secure desirable jobs and succeed in their careers, including both internal factors like personal knowledge and external factors like labor market conditions, as well as soft skills and general knowledge.	Hosain et al., 2023

Employability skills refer to the combination of abilities that help individuals secure, maintain, and excel in employment. These skills primarily include soft skills, such as communication, adaptability, and problem-solving, which are crucial for navigating workplace dynamics. However, a complete employability skill set also encompasses hard skills or technical knowledge, making it essential to balance both interpersonal and job-specific competencies.

The primary purpose of employability skills is to ensure individuals can adapt to the evolving demands of the job market, solve real-world problems, and create a unique professional profile that makes them competitive. These skills are critical for both entry-level success and long-term career progression, helping individuals stand out and maintain relevance in their roles.

Additionally, employability skills are not static, they require continuous development to keep pace with changing industry standards and labor market conditions. This dynamic process emphasizes the importance of ongoing learning and adaptability, as employability is shaped by both personal growth and external factors.

4.1.2. Unified definition of employability skills

Employability skills are the key abilities that help individuals secure, maintain, and succeed in employment, with most definitions emphasizing soft skills like communication, teamwork, and problem-solving. However, a comprehensive view also includes hard skills, or technical abilities specific to certain jobs. These skills are essential for adapting to changing work environments, solving real-world problems, and standing out in competitive job markets. Additionally, employability skills require continuous development, as both personal competencies and external factors like labor market conditions play a role in long-term career success.

4.2. Definition and distinction of soft and hard skill

4.2.1. Definition of soft and hard skill

"Soft skills", are discussed in four journals, while "hard skills" are discussed in four journals (Hirudayaraj et al., 2021; Hosain et al., 2023; Innerhofer et al., 2024; Kenayathulla et al., 2019; Junrat et al., 2014).

While there is no universally accepted definition of soft skills, researchers have referred to them as "non-cognitive," "non-technical," "transferable," or "generic skills", highlighting personal behavioral attributes, values, or traits (Hirudayaraj et al., 2021; Kenayathulla et al., 2019). Another perspective describes soft skills as skills involving the relationship between individuals and society, typically developed through experience and reflection (Junrat et al., 2014). Many researchers equate soft skills with people skills or the ability to interact with others effectively, yet they encompass more than just interpersonal relations. Another way to describe soft skills is as an integrated set of interpersonal and intrapersonal skills that significantly impact employee productivity and performance, thereby enhancing organizational success. Consequently, employers are increasingly prioritizing these skills. Another notable fact about soft skill is that a study revealed 58% of managers believe their company's success is hindered by the lack of soft skills among potential employees, particularly in high-growth industries and startups. Additionally, 59% of these managers find it more challenging to find employees with competent soft skills than hard skills. This illustrates how important soft skills are to have (Hirudayaraj et al., 2021; Innerhofer et al., 2024).

Hard skills, in simpler terms, encompass the specific abilities needed to carry out job-related tasks (Hirudayaraj et al., 2021). They constitute a blend of technical and cognitive knowledge and capabilities, often acquired through education or training (Kenayathulla et al., 2019). Hard skill usually referred to as technical skills, and can also be described as competencies involving the mastery of various tools and techniques such as software, computers, and IT systems, which are increasingly crucial in today's competitive landscape marked by rapid technological advancements (Hosain et al., 2023). Unlike soft skills, hard skills are quantifiable and measurable, it can be explicitly learned and trained, making them distinguishable as techniques or management approaches for tasks (Junrat et al., 2014).

4.2.2. Distinction of soft and hard skill

The author found these four features as the key differences between soft and hard skills (**Table 2**).

Table 2. Distinction of soft and hard skill.

Soft Skills	Hard Skills
Personal behavioral attributes, values, or traits	Specific abilities for job-related tasks
Developed through personal experience and reflection	Acquired through education or training
Integral to interpersonal and intrapersonal relations	A combination of technical and cognitive knowledge and capabilities
Unquantifiable and unmeasurable	Quantifiable and measurable

4.3. Commonly required soft skills

Based on the full paper literature review (**Table 3**), the top 5 soft skills are communication skills, thinking and problem solving, teamwork, ethical and professional morality, and leadership skills. Other notable skills and their occurrence count are social and interpersonal skill (3), continuous learning (3), and planning and organizing (3), digital fluency (2), initiative and enterprise (2), management skills (2), self-management skills (2).

Table 3. Commonly required soft skills.

Rank	Skill Name	Authors	Count	Description
1	Communication Skill	Hirudayaraj et al. (2021), Hosain et al. (2023), Junrat et al. (2014), Kenayathulla et al. (2019), Kwarteng and Mensah (2022), Lin and Chang (2018), Xu et al. (2022), Zaharim et al. (2012)	8	Ability to convey information effectively, both verbally and non-verbally.
2	Thinking and Problem Solving Skill	Hirudayaraj et al. (2021), Hosain et al. (2023), Junrat et al. (2014), Kenayathulla et al. (2019), Kwarteng and Watson et al. (1990), Mensah (2022), Xu et al. (2022), Zaharim et al. (2012)	8	Ability to understand and process complex situation and problem, thinking critical and creatively to solve the problem.
3	Teamwork	Hosain et al. (2023), Hirudayaraj et al. (2021), Junrat et al. (2014), Kenayathulla et al. (2019), Xu et al. (2022), Zaharim et al. (2012)	6	Ability to work in teams, coordinate and collaborate with others
4	Ethical and Professional Morality	Innerhofer et al. (2024), Junrat et al. (2014), Kwarteng and Mensah (2022), Kenayathulla et al. (2019), Zaharim et al. (2012)	5	Integrity, attitude, Ethic and personal behaviour.
5	Leadership Skill	Hirudayaraj et al. (2021), Hosain et al. (2023), Junrat et al. (2014), Kwarteng and Mensah (2022), Kenayathulla et al. (2019)	5	Ability to lead, inspire, and motivate others to achieve common goals.

4.4. Categorization of commonly required hard skills

Table 4. Categorization of commonly required hard skills.

Rank	Kategori	Authors	Description
1	Job-Related Technical and Vocational Skills	Hosain et al. (2023), Kwarteng and Mensah (2022), Kenayathulla et al. (2019), Lin and Chang (2018), Watson et al. (1990), Xu et al. (2022), Yusoff et al. (2012)	Technical and vocational skills relevant to each specific occupation.
2	Basic Technology and Digital Abilities	Kwarteng and Mensah (2022), Lin and Chang (2018), Watson et al. (1990)	Knowledge and use of basic technology and software used, such as Microsoft Office, etc.
3	Knowledge of Current Issues and Regulations	Lin and Chang (2018), Wu (2006), Watson et al. (1990), Yusoff et al. (2012)	Knowledge of current issues and understanding of laws and regulations regarding their work.
4	Data Processing and Analysis	Kwarteng and Mensah (2022), Lin and Chang (2018), Watson et al. (1990)	Ability to process and analyze data.

"Definition and distinction of soft and hard skills" section, hard skills exhibit specificity towards each job-related task and are not inherently generic. Therefore, the author categorizes the findings into clusters, where clustering involves gathering finite unlabeled observations into homogeneous subgroups. The aim is to separate and group data (skills) while maximizing their similarities and dissimilarities to the fullest extent

(Cheam and Fredette, 2020). These clusters include job-related technical and vocational skills, basic technology and digital abilities, knowledge of current issues and regulations, and data processing and analysis (**Table 4**).

4.5. Soft skills vs. hard skills in employability

In this review of the literature, most studies do not explicitly state whether soft skills or hard skills are more important. Many treats both types of skills as equally critical for employability. However, six studies clearly indicate that soft skills are considered more important than hard skills by employers across different fields.

The six studies that emphasize the importance of soft skills are:

1) "Evaluating the Soft Skills Performed by Applicants of Malaysian Engineers"—In the engineering field, communication and teamwork are ranked higher than technical skills. Employers see these soft skills as crucial in job interviews and for long-term career success (Zaharim et al., 2012).
2) "Employability of accounting graduates: analysis of skills sets"—In accounting, while technical knowledge is necessary, soft skills like interpersonal communication and ethics are more highly valued by employers (Kwarteng and Mensah, 2022).
3) "Soft skills for entry-level engineers: What employers want"—For entry-level engineers, soft skills such as communication and adaptability are increasingly prioritized over technical skills. Employers find it harder to hire candidates with strong soft skills (Hirudayaraj et al., 2021).
4) "Gaps between competence and importance of employability skills: evidence from Malaysia"—This study confirms that soft skills, particularly communication and teamwork, are more critical for job success and career advancement compared to technical skills (Kenayathulla et al., 2019).
5) "Soft Skills for University Library Staff in Thailand"—The ability to collaborate, communicate effectively, and resolve conflicts often determines how well individuals apply their technical skills in practice (Junrat et al., 2014).
6) "Antecedents of labor shortage in the rural hospitality industry: a comparative study of employees and employers"—This study stresses the need for industries to engage in shaping the workforce by collaborating with educational institutions to ensure the development of soft skills. It highlights that soft skills are crucial for thriving in diverse work environments, especially as technical competencies can quickly become outdated (Innerhofer et al., 2024).

These studies demonstrate that while technical (hard) skills remain necessary for specific job tasks, soft skills are increasingly seen as the key differentiators for employability and career success. Employers emphasize that skills like communication, teamwork, and problem-solving enable employees to adapt to changing workplace demands and collaborate effectively, often making them more valuable than technical proficiencies.

5. Discussion

In today's job market, there's a curious paradox: while employers struggle to find skilled workers, job seekers face fierce competition for limited opportunities. This

contradictory situation arises from a significant mismatch in perceptions between graduates and employers regarding the skills deemed essential for employment (Innerhofer et al., 2024). Despite being equipped with formal qualifications, many graduates lack the practical skills and competencies required by industries, resulting in underemployment and dissatisfaction. Hence, it becomes imperative to incorporate employability skills into education to bridge this gap and ensure better alignment with industry requirements (Clark et al., 2024). Understanding the specific needs of various industries and identifying the essential entry-level skills is crucial for enhancing employability and ensuring that graduates can successfully navigate the job market (Hopewell et al., 2024; Mekonnen et al., 2024; Monye et al., 2023; Raghunath et al., 2023).

Employability skills are not a monolithic concept but rather encompass a combination of technical (hard skills) and interpersonal (soft skills) competencies, both of which are highly valued by employers across different sectors (Hosain et al., 2023; Kenayathulla et al., 2019; Yusoff et al., 2012; Zaharim et al., 2012). Hard skills, such as technical proficiency and digital literacy, are foundational for performing specific job tasks and are typically acquired through formal education and training (Hirudayaraj et al., 2021; Kenayathulla et al., 2019). Conversely, soft skills, including communication, problem-solving, teamwork, and leadership, are personal attributes that are often developed through experience and are crucial for effective collaboration and adaptability in the workplace (Hirudayaraj et al., 2021; Junrat et al., 2014; Kenayathulla et al., 2019). Although communication is not listed in the World Economic Forum's top 10 job skills, its consistent prominence in literature highlights its indispensable role in professional interactions and overall productivity. Similarly, skills such as continuous learning and adaptability, though not always ranked among the top skills, are increasingly recognized as essential for ensuring career sustainability and resilience in a volatile job market (Laguna-Sánchez et al., 2020).

Among the two categories of employability skills, soft skills have been identified as more critical than hard skills in determining job success and career advancement (Hirudayaraj et al., 2021; Kenayathulla et al., 2019). This is because soft skills like communication and teamwork not only contribute to individual productivity but also influence organizational culture, employee relationships, and overall performance. The ability to communicate effectively, resolve conflicts, and collaborate with others often dictates how well an individual can utilize their hard skills in practice (Junrat et al., 2014). Consequently, employers are placing increasing emphasis on soft skills when hiring and evaluating employees, recognizing that these skills are key differentiators in an era where technical competencies can be quickly outdated by technological advancements (Kenayathulla et al., 2019). As a result, there is a growing need for both educational institutions and industries to collaborate and prioritize the development of soft skills to complement technical training.

Given the emphasis on soft skills, industries must proactively engage in shaping the workforce to meet their evolving needs. This can be achieved through partnerships with educational institutions and professional training centers to provide targeted programs that hone these critical skills. Industries should also consider implementing continuous learning opportunities within the organization, such as workshops, mentorship programs, and cross-functional projects, which can help employees

enhance their soft skills alongside their technical abilities. Furthermore, industries can benefit from establishing clear communication channels with educational providers to ensure that the curriculum reflects the realities of the workplace and fosters the development of well-rounded professionals. Such initiatives can help reduce the skills gap and ensure that new hires are equipped not just with technical knowledge but also with the adaptability and interpersonal competencies necessary to thrive in diverse work environments (Innerhofer et al., 2024).

Higher education institutions, on the other hand, must reevaluate their approach to teaching and curriculum design. Universities should consider integrating competency-based learning models that emphasize both technical training and the cultivation of soft skills. This can include offering experiential learning opportunities, such as internships, capstone projects, and industry collaborations, which allow students to apply their knowledge in real-world settings and develop essential soft skills in the process. Additionally, embedding soft skills modules—such as communication, teamwork, and ethical decision-making—into technical courses can help ensure that graduates are not only knowledgeable but also effective in their interpersonal interactions and decision-making processes. By aligning their programs more closely with industry requirements, educational institutions can play a pivotal role in enhancing graduates' employability, thereby reducing underemployment and ensuring that new entrants into the job market are equipped to meet both current and future challenges.

6. Conclusion

The findings of this study emphasize the growing importance of soft skills over hard skills in determining professional success in today's complex and dynamic job market. While hard skills—such as technical proficiency and job-specific knowledge—are fundamental for completing specific tasks, they are no longer sufficient to ensure long-term career success. In contrast, soft skills, including communication, teamwork, problem-solving, and leadership, have become critical competencies that employers seek to foster a productive and collaborative work environment (Innerhofer et al., 2024; Kenayathulla et al., 2019). These skills are universally applicable across various industries and contribute significantly to organizational success by enabling employees to navigate interpersonal relationships and adapt to changing environments more effectively (Hirudayaraj et al., 2021; Junrat et al., 2014).

The study also reveals a notable gap between the skills that graduates possess and those demanded by employers, leading to underemployment and job dissatisfaction (Innerhofer et al., 2024). Many employers find it challenging to recruit candidates with strong soft skills, despite a relatively higher availability of hard skills (Hirudayaraj et al., 2021; Innerhofer et al., 2024). This mismatch underscores the need for educational institutions to integrate soft skills development into their curricula, ensuring that graduates are better prepared to meet industry expectations. Moreover, employers should consider incorporating soft skills training into employee development programs, as strengthening these skills can significantly enhance productivity, team

collaboration, and overall organizational culture (Hosain et al., 2023; Kenayathulla et al., 2019).

To address these challenges, companies can collaborate more closely with educational institutions to influence curriculum design and ensure a balanced focus on both hard and soft skills. Such partnerships will help reduce the skills gap and provide a workforce better aligned with industry needs. Additionally, organizations should evaluate and prioritize soft skills during the recruitment process, offering targeted training to nurture these competencies among employees. Implementing these strategies can contribute to creating a workforce that is versatile, adaptable, and capable of driving long-term organizational success.

However, one limitation of this study is the restricted access to comprehensive research databases, which may have limited the scope of the literature reviewed. Further empirical studies are needed to validate these findings, particularly to explore the perception gap between employers and graduates regarding the relative importance of these skills. Addressing this gap will offer valuable insights for developing more effective educational programs and recruitment strategies, ultimately fostering a more competent and competitive workforce in the modern job market.

Author contributions: Conceptualization, DD; methodology, CI; formal analysis, RR; investigation, DD, CI and RR; data curation, RR; writing—original draft preparation, RR; writing—review and editing, DD and CI. All authors have read and agreed to the published version of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

References

Barney, J. B. (2021). The Emergence of Resource-Based Theory: A Personal Journey. Journal of Management, 47(7), 1663–1676. https://doi.org/10.1177/01492063211015272

Cheam, A. S. M., & Fredette, M. (2020). On the importance of similarity characteristics of curve clustering and its applications. Pattern Recognition Letters, 135, 360–367. https://doi.org/10.1016/j.patrec.2020.04.024

Clark, C., Fishman, T., Cluver, M., & Kunkel, D. (2024). 2024 Higher Education Trends. https://www2.deloitte.com/us/en/insights/industry/public-sector/latest-trends-in-higher-education.html

Clauss, T., Kesting, T., & Franco, M. (2024). Innovation generation through formalisation and fairness in university – Industry collaboration. Technovation, 134. https://doi.org/10.1016/j.technovation.2024.103049

Farooqui, Ms. S., & Nagendra, A. (2014). The Impact of Person Organization Fit on Job Satisfaction and Performance of the Employees. Procedia Economics and Finance, 11, 122–129. https://doi.org/10.1016/s2212-5671(14)00182-8

Hirudayaraj, M., Baker, R., Baker, F., & Eastman, M. (2021). Soft skills for entry-level engineers: What employers want. Education Sciences, 11(10). https://doi.org/10.3390/educsci11100641

Hopewell, E., Pike, R., Lembong, J., Hewitt, M., & Fekete, N. (2024). Filling the Gap: The Workforce of Tomorrow for CGT Manufacturing as the Sector Advances. Cytotherapy. https://doi.org/10.1016/j.jcyt.2024.03.007

Hosain, M. S., Mustafi, M. A. A., & Parvin, T. (2023). Factors affecting the employability of private university graduates: an exploratory study on Bangladeshi employers. PSU Research Review, 7(3), 163–183. https://doi.org/10.1108/PRR-01-2021-0005

Huang, J., Balezentis, T., Shen, S., & Streimikiene, D. (2023). Human capital mismatch and innovation performance in high-technology enterprises: An analysis based on the micro-level perspective. Journal of Innovation and Knowledge, 8(4).

Hung, B. K. H., To, C. C. N., Fung, R. K. H., & Chan, C. C. S. (2023). Addressing Proficiency Gaps in Future Skills Between Employers and Learners Through Data Visualization. SN Computer Science, 4(3). https://doi.org/10.1007/s42979-023-01722-3

Innerhofer, J., Nasta, L., & Zehrer, A. (2024). Antecedents of labor shortage in the rural hospitality industry: a comparative study of employees and employers. Journal of Hospitality and Tourism Insights, 7(1), 28–55. https://doi.org/10.1108/JHTI-04-2022-0125

Junrat, S., Jenphop, C., Suravee, R., & Kanokorn, S. (2014). Soft Skills for University Library Staff in Thailand. Procedia - Social and Behavioral Sciences, 112, 1027–1032. https://doi.org/10.1016/j.sbspro.2014.01.1265

Kenayathulla, H. B., Ahmad, N. A., & Idris, A. R. (2019). Gaps between competence and importance of employability skills: evidence from Malaysia. Higher Education Evaluation and Development, 13(2), 97–112. https://doi.org/10.1108/heed-08-

Kwarteng, J. T., & Mensah, E. K. (2022). Employability of accounting graduates: analysis of skills sets. Heliyon, 8(7). https://doi.org/10.1016/j.heliyon.2022.e09937

Laguna-Sánchez, P., Abad, P., de la Fuente-Cabrero, C., & Calero, R. (2020). A university training programme for acquiring entrepreneurial and transversal employability skills, a students' assessment. Sustainability (Switzerland), 12(3). https://doi.org/10.3390/su12030796

Lasso-Dela-Vega, E., Sánchez-Ollero, J. L., & García-Pozo, A. (2023). Effects of educational mismatch on wages across industry and occupations: sectoral comparison. International Journal of Manpower, 44(9), 237–255. https://doi.org/10.1108/IJM-02-2022-0081

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gotzsche, P. C., Ioannidis, J. P. A., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions: explanation and elaboration. BMJ, 339(jul21 1), b2700–b2700. https://doi.org/10.1136/bmj.b2700

Lin, C. C., & Chang, C. H. (2018). Evaluating skill requirement for logistics operation practitioners: based on the perceptions of logistics service providers and academics in Taiwan. Asian Journal of Shipping and Logistics, 34(4), 328–336. https://doi.org/10.1016/j.ajsl.2018.12.006

Lubis, N. W. (2022). Resource Based View (RBV) in Improving Company Strategic Capacity. In Research Horizon (Vol. 2, Issue 6).

Mekonnen, Y. B., Herut, A. H., Demissie, M. M., Bareke, M. L., Agezew, B. H., Dedho, N. H., & Lebeta, M. F. (2024). Trends of higher education enrolment, graduation, and employment in Ethiopia: an empirical analysis. Cogent Education, 11(1). https://doi.org/10.1080/2331186X.2024.2302623

Monye, S. I., Afolalu, S. A., Lawal, S. L., Gisanrin, T. T., Oluwatoyin, O. A., & Adeyemi, A. G. (2023). NOW AND FUTURE CHALLENGES OF THE AUTOMOBILE INDUSTRY IN THE DEVELOPING WORLD. E3S Web of Conferences, 430. https://doi.org/10.1051/e3sconf/202343001221

O'Boyle, C., Atack, J., & Monahan, K. (2017). Generation Z enters the workforce Generational and technological challenges in entry-level jobs A Deloitte series on Future of Work.

Raghunath, N., Haapala, K. R., & Sanchez, C. A. (2023). Manufacturing Letters Examining industry expectations for content knowledge in mechatronics across career and professional certificate programs-NC-ND license (https://creativecommons.org/licenses/by-nc-nd/4.0) Peer-review under responsibility of the Scientific Committee of the NAMRI/SME. In Manufacturing Letters (Vol. 35). www.sciencedirect.com

Rikala, P., Braun, G., Järvinen, M., Stahre, J., & Hämäläinen, R. (2024). Understanding and measuring skill gaps in Industry 4.0 — A review. Technological Forecasting and Social Change, 201. https://doi.org/10.1016/j.techfore.2024.123206

Sirmon, D. G., Hitt, M. A., Ireland, R. D., & Gilbert, B. A. (2011). Resource orchestration to create competitive advantage: Breadth, depth, and life cycle effects. In Journal of Management (Vol. 37, Issue 5, pp. 1390–1412). https://doi.org/10.1177/0149206310385695

Sudibjo, N., & Prameswari, R. K. (2021). The effects of knowledge sharing and person–organization fit on the relationship between transformational leadership on innovative work behavior. Heliyon, 7(6). https://doi.org/10.1016/j.heliyon.2021.e07334

van Woerkom, M., Bauwens, R., Gürbüz, S., & Brouwers, E. (2024). Enhancing person-job fit: Who needs a strengths-based leader to fit their job? Journal of Vocational Behavior, 154. https://doi.org/10.1016/j.jvb.2024.104044

Watson, H. J., Young, D., Miranda, S., Robichaux, B., & Seerle, R. (1990). Requisite Skills For New Mis Hires. SIGMIS, 21(1), 20–29.

Wu, Y. C. J. (2006). Skill requirements for logistics license in Taiwan. Supply Chain Management, 11(5), 415–424. https://doi.org/10.1108/13598540610682435

Xu, J. B., Tavitiyaman, P., Zhang, X., & Zhu, M. (2022). A study of work-integrated learning experience of hospitality and tourism management students in Guangdong under the COVID-19 pandemic. Public Administration and Policy, 25(3), 221–234. https://doi.org/10.1108/PAP-03-2022-0021

Yusoff, Y. M., Omar, Mohd. Zaidi., Zaharim, A., Mohamed, A., & Muhamad, N. (2012). Formulation in Evaluating the Technical Skills of Engineering Graduates. Procedia - Social and Behavioral Sciences, 60, 493–499. https://doi.org/10.1016/j.sbspro.2012.09.413

Zaharim, A., Ahmad, I., Yusoff, Y. M., Omar, M. Z., & Basri, H. (2012). Evaluating the Soft Skills Performed by Applicants of Malaysian Engineers. Procedia - Social and Behavioral Sciences, 60, 522–528. https://doi.org/10.1016/j.sbspro.2012.09.417