

# CHAPTER I

## INTRODUCTION

### 1.1 Problem Background

The transition from higher education to employment has become increasingly complex in today's competitive labor market. Holding an academic degree alone is no longer sufficient to guarantee career success, as employers increasingly demand graduates who possess both technical expertise and transferable employability skills. Employability skills are defined as a set of competencies, knowledge, and personal attributes that enhance an individual's ability to secure employment and succeed professionally (Yorke, 2006). These skills typically include communication, teamwork, adaptability, problem-solving ability, and professional reliability. Recent global research indicates that employers prioritize both soft and technical skills to ensure workforce adaptability and innovation (Mardiyah & Hayat, 2026). In addition, interdisciplinary competencies such as critical thinking, creativity, and digital literacy are becoming increasingly essential, especially in STEM-related fields (Norton & Dalrymple, 2020). The competitive nature of the modern labor market demands that graduates not only demonstrate theoretical knowledge but also apply practical skills in real-world settings. As such, employability has emerged as a multidimensional construct linking academic preparation with professional outcomes (Whalley et al., 2024).

Despite the emphasis on technical training, recent studies highlight the persistent gap in employability skills among graduates worldwide. Many

higher education institutions continue to focus predominantly on theoretical instruction, leaving graduates underprepared for the nuanced demands of the workplace (Tushar & Sooraksa, 2023). Research has shown that the development of soft skills such as collaboration, communication, adaptability, and problem-solving plays a critical role in early career success (Ilyas & Ali, 2023). Furthermore, graduates in specialized disciplines, such as geology, often possess strong domain-specific knowledge but vary considerably in their professional readiness (Becker, 1993). Differences in work exposure, project participation, and interpersonal competencies lead to divergent career trajectories even among students from the same program (Scandurra et al., 2024). These findings underscore the importance of integrating both technical and non-technical skill development within higher education curricula. Recent literature also emphasizes that work-integrated learning, experiential projects, and mentorship initiatives serve as key mechanisms to bridge this skills gap (Whalley et al., 2024). The literature consistently points to the necessity of aligning higher education outcomes with labor market expectations to ensure holistic employability (Mardiyah & Hayat, 2026).

In many countries, the employability of graduates has become a pressing concern due to rising unemployment rates and skill mismatches. For instance, Pakistan demonstrates a clear disconnect between university curricula and industry demands, leading to challenges for both graduates and employers (Riaz et al., 2025). While universities emphasize theoretical rigor, employers expect practical competencies, professional ethics, and adaptive behaviors

from new hires (Ilyas & Ali, 2023). Similar trends are observed globally, with employers reporting difficulty in recruiting graduates who possess adequate professional readiness alongside academic qualifications (Whalley et al., 2024). The mismatch is particularly apparent in STEM disciplines, where technical expertise alone does not guarantee employability or early career advancement (Mardiyah & Hayat, 2026). Addressing these gaps requires institutions to not only develop curricula but also foster industry partnerships, mentorships, and experiential learning opportunities (Norton & Dalrymple, 2020). Research highlights that graduates who engage in work-integrated learning demonstrate higher levels of confidence, adaptability, and employability upon entering the workforce (Kamaruddin, 2025).

Higher education institutions are increasingly recognized as critical stakeholders in shaping graduate employability. Activities such as internships, capstone projects, cooperative education, and professional development programs serve as platforms for students to acquire practical skills and workplace competencies (Whalley et al., 2024). Work-integrated learning initiatives enable students to apply theoretical knowledge in authentic professional contexts, improving their problem-solving, teamwork, and communication abilities (Mardiyah & Hayat, 2026). Furthermore, these programs provide graduates with exposure to industry-specific tools, digital platforms, and methodologies, enhancing technical proficiency alongside interpersonal skills (Rizakhojayeva et al., 2025). Evidence also suggests that mentoring relationships in early career stages are crucial for professional

integration, role clarity, and accelerated skill acquisition (Whalley et al., 2024). Universities that embed employability frameworks systematically across curricula tend to produce graduates with better adaptability and higher career satisfaction (Norton & Dalrymple, 2020). These integrated approaches not only strengthen workforce readiness but also support graduates in navigating complex, rapidly evolving labor markets (Tushar & Sooraksa, 2023).

Work-integrated learning experiences, such as capstone courses, play a pivotal role in preparing graduates for professional roles. Research indicates that capstone projects expose students to real-world challenges, collaborative problem-solving, client engagement, and project management practices (Whalley et al., 2024). Through such projects, students learn to coordinate team efforts, manage timelines, and adapt to unexpected challenges, fostering transferable skills applicable to professional settings (Mardiyah & Hayat, 2026). Moreover, graduates report that these experiences enhance their understanding of workplace dynamics, reinforce technical knowledge, and cultivate leadership and initiative (Whalley et al., 2024). Despite their value, the literature notes that capstone experiences alone may not fully address all employability competencies, particularly for students entering highly dynamic industries or small enterprise settings (Norton & Dalrymple, 2020). Consequently, a combination of capstone projects, internships, and mentorship is recommended to optimize graduate readiness (Kamaruddin, 2025). Such approaches provide students with both foundational technical competence and

the social-emotional skills required to thrive in professional environments (Mardiyah & Hayat, 2026).

Mentorship and professional guidance emerge as critical components in the successful transition from student to professional. Studies show that less than half of graduates in technology fields receive structured mentorship upon entering their first industry role, despite strong evidence of its benefits for skill development and career progression (Whalley & Clear, 2024). Mentors provide guidance, feedback, and support, allowing graduates to navigate workplace challenges, clarify expectations, and internalize professional norms (Whalley & Clear, 2024). In the absence of mentorship, graduates often resort to self-directed learning, which can delay integration and increase uncertainty (Whalley & Clear, 2024). The literature also emphasizes that mentorship contributes to leadership skill development, interpersonal confidence, and broader employability outcomes, highlighting its importance alongside formal educational programs (Mardiyah & Hayat, 2026).

Soft skills, including communication, teamwork, adaptability, and problem-solving, are consistently highlighted as stronger determinants of employability than technical skills alone (Mardiyah & Hayat, 2026). While technical skills provide the necessary foundation for performing specific tasks, soft skills enable graduates to collaborate, innovate, and navigate complex work environments (Ilyas & Ali, 2023). In both STEM and non-STEM contexts, employers value graduates who can integrate technical expertise with interpersonal competence, demonstrating a balanced professional profile often

described as “T-shaped” (Deming & Silliman, 2025). Studies also show that higher education programs that explicitly integrate soft skill development into technical curricula produce graduates with greater resilience, adaptability, and long-term employability (Rizakhojayeve et al., 2025).

Global research underscores the importance of contextualized and discipline-specific strategies to enhance employability. While general employability frameworks are valuable, the literature suggests that interventions must consider disciplinary identity, industry expectations, and professional practices unique to each field (Norton & Dalrymple, 2019). For instance, geology graduates must combine technical knowledge in mineralogy, geotechnics, and environmental analysis with communication, teamwork, and problem-solving skills to succeed in professional roles (Mardiyah & Hayat, 2026). Tailored programs that incorporate industry partnerships, experiential learning, and mentorship are therefore more effective than generic employability initiatives (Whalley & Clear, 2024).

Technological advancements and the changing labor market further complicate the transition from university to employment. The increasing use of digital tools, remote work, and automation requires graduates to be digitally literate and agile in adapting to new technologies (Norton & Dalrymple, 2019). Graduates must navigate evolving professional norms, interdisciplinary collaboration, and workplace innovation while maintaining both technical and soft skill competencies (Mardiyah & Hayat, 2026). Institutions that fail to

address these trends risk producing graduates who are underprepared for contemporary workplace demands (Whalley & Clear, 2024).

In addition to technological pressures, the global labor market exhibits variations in employment patterns, organizational structures, and industry expectations. Graduates may enter large multinational corporations, small to medium enterprises, or startups, each requiring different skill combinations and professional dispositions (Whalley & Clear, 2024). Studies highlight that small enterprise environments often require rapid adaptability, broad functional knowledge, and entrepreneurial initiative, whereas large-scale organizations may prioritize technical specialization and structured professional development (Norton & Dalrymple, 2020). Consequently, employability programs must equip graduates with a diverse skill set applicable across multiple contexts.

Cross-border and international perspectives reveal that challenges in graduate employability are pervasive. Research from the UK, New Zealand, and Indonesia highlights similar issues regarding skill gaps, mentorship availability, and the integration of work-based learning into curricula (Norton & Dalrymple, 2019; Whalley & Clear, 2024; Mardiyah & Hayat, 2026). These studies collectively emphasize that employability is a multidimensional construct requiring alignment among academic curricula, industry engagement, and student agency. Strategies that combine experiential learning, mentorship, and integrated skill development consistently lead to better career outcomes for graduates (Kamaruddin, 2025).

Empirical evidence suggests that graduates who engage in sustained, structured employability initiatives demonstrate higher career adaptability and improved professional performance. For example, project-based learning, placement programs, and co-curricular activities enhance both technical competence and social-emotional intelligence (Mardiyah & Hayat, 2026). Similarly, fostering creativity, problem-solving, and leadership through experiential programs has been shown to contribute positively to graduates' professional trajectories (Souza & Romero, 2021). These findings indicate that higher education institutions must adopt holistic approaches to employability to prepare students for complex, uncertain labor markets (Rizakhojayeva et al., 2025).

Policy analyses and higher education frameworks further highlight the need for sustained engagement between universities and industry stakeholders. Employer participation in curriculum design, mentoring, and work-integrated learning provides graduates with real-world perspectives, improving both their readiness and the alignment of academic programs with labor market demands (Norton & Dalrymple, 2019). This approach also promotes equity, inclusivity, and access, as structured mentorship and training opportunities can bridge gaps for underrepresented student populations (Ukhova et al., 2025). Integrating such initiatives ensures that graduates are not only technically proficient but also socially, emotionally, and ethically prepared for professional challenges (Whalley & Clear, 2024).

In light of these considerations, it is clear that graduate employability extends beyond technical knowledge, encompassing a combination of practical experience, soft skills, mentorship, and industry engagement (Mardiyah & Hayat, 2026). Higher education institutions that integrate these components systematically across curricula are better positioned to produce graduates capable of adapting to diverse career pathways and sustaining long-term employability (Norton & Dalrymple, 2019).

However, qualitative research focusing on discipline-specific contexts, particularly in geology, remains limited. Therefore, understanding the role of employability skills in the career success of geology graduates is crucial to bridging the gap between higher education and labor market demands.

## **1.2 Research Question**

This study seeks to explore how employability skills influence career outcomes among geology graduates in Pakistan. Specifically, the research aims to answer the following questions:

1. What employability skills are demonstrated by geology graduates with different career outcomes in Pakistan?
2. How do geology graduates perceive and describe their own career success?
3. How do employability skills contribute to career success among geology graduates in Pakistan?

## **1.3 Research Purpose**

Based on the research questions, the purposes of this study are formulated as follows:

1. To identify the employability skills demonstrated by geology graduates with different career outcomes in Pakistan.
2. To examine geology graduates' descriptions and perceptions of their career success.
3. To explore how employability skills contribute to career success among geology graduates in Pakistan.

#### **1.4 Benefits of Research**

##### **1. Theoretical Benefits**

###### **a. Contribution to Literature**

Enriches knowledge on employability skills and career success in a discipline-specific context, offering insights from qualitative evidence.

##### **2. Practical Benefits**

###### **a. Understanding Employability Skills in Practice**

Provides insights on how employability skills are applied in professional settings, particularly in geology.

###### **b. Alignment Between Education and Industry Needs**

Can guide universities to better prepare graduates through targeted skill development programs.

###### **c. Integration of Soft Skills and Practical Experience**

Highlights the importance of combining transferable skills, practical learning, and academic knowledge to meet employer expectations.