Exploring the Impact of Client-Based Projects on the Employability of International Students

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Master of Business Administration

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Table of Contents

LIST OF FIGURES

LIST OF TABLES

Abstract

This study analyzes the impact of client-based projects on the employability of international students in Canada. This research examines how technical and meta-skills (creativity, communication, critical thinking, and collaboration), and student feedback influence the perceived employability of international students in Canada. This study uses survey responses from 526 participants and uses a structural model for empirical analysis. The research findings demonstrate that technical and meta-skills are significant indicators of employability, and the student feedback as a moderating factor influences the relationship between independent and dependent variables. The theoretical contribution of the research emphasizes the practical implications for universities, post-secondary institutions, employers, industry partners, and policymakers to understand the importance of experimental learning while ensuring career readiness. Overall, this study exhibits that students who participated in a client-based project have a positive impact on enhancing employability by developing technical and meta-skills, and that structure is further strengthened by structured feedback.

Key Words: Client-Based Projects(CBPs), Employability, International Students, Technical Skills, Meta-Skills, Student Feedback, Experiential Learning

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Certification

This is to certify that the research work titled "**Exploring the Impact of Client-Based Projects on Employability of International Students**" is the original work of Sanduni Kaushalya Tholka Mudalige Dona, as a coursework requirement for the degree of Master of Business Administration at University Canada West, under the supervision of Dr. Vaishali Sethi.

To the best of my knowledge, this research has not been presented for a degree at this or any other institution.

Dedication

This study is committed and dedicated to all the international students in Canada who strive to enhance their employability. It is a compliment to their resilience, determination, and steady effort in academic and professional success.

Chapter 1: Introduction

In recent decades, educational institutions have faced pressure to increase the employability skills of their graduates to meet the job market demand (Jackling & De Lange, 2009; Turner, 2014). Rapid changes in the business world have posed significant challenges to students to build potential skills apart from the theoretical knowledge that meet the expectations of employers (De Lange et al., 2006; Wilton, 2011). The recent economic depression and challenges clearly highlight the need for skillful and work-ready employees to address the drawbacks (Hossain, Alam, Alamgir, & Salat, 2020).

Employability is a main concern for international students who come to pursue higher studies in developed countries (Zhao et al., 2024; Li et al., 2024). Although foreign experience and qualifications are commonly reflected as career strengths, international students in Canada face obstacles in securing employment opportunities after their graduation. In Canada, these challenges are frequently combined with problems of qualification recognition, a lack of Canadian experience, and ambiguity about communication processes and organizational culture. These issues result in ‘First-job-friction’, where an eligible international graduate finds it difficult to reliably convey their expertise and competencies to employers (Thomas, 2021). It reveals the signaling problem that employers may not value international graduates’ proficiencies and potential productivity since they heavily depend on signals such as qualifications, domestic work experience, or cultural alignment when examining applicants. Therefore, international graduates might strategically demonstrate their employability credentials through their professional skills and values to secure employment (Handley & den Outer, 2024).

The recent Canadian academic research clarifies this problem for international students in the Greater Toronto area, stating that increasing employment barriers throughout the period, as many graduates encounter barriers to employment despite their higher

educational credentials. Almost half of the students revealed that their income did not adequately cover living expenses, which emphasizes structural challenges that limit graduates from conveying their employability skills to potential employers (Hoxhaj, Muharremi, & Aarif, 2025).

According to Reitz et al. (2014), high-skilled foreign workers in Canada, including international students, confronted difficulties when finding jobs related to their previous experience and qualifications. The main potential reasons for these challenges are primarily a lack of recognition of foreign experience and qualifications, and language barriers. To bridge the gap between academic education and employment skills, Canadian higher educational institutions have implemented experimental learning methods such as client-based project (CBP) models. The Riipen is a common platform for educators, learners, and employers to network and prepare the career readiness of students. (Dalecki, 2019). These projects help international students to develop technical and meta-skills in a professional context (Rohm et al., 2021).

Although the previous literature has highlighted the benefits of internships, experimental learning, and co-op programs, the impact of CBP on the employability of international students remains underexplored. However, the role of student feedback as a moderator in influencing the employability skills of international students through the studies is not well understood. Students perceived that feedback offers an understanding of how international students observe CBP on fostering technical and meta-skills. For instance, such student feedback captures not only skill acquisition but also generates self-efficacy, confidence, and preparedness for the domestic workforce, thus providing a significant indicator for evaluating employability outcomes (Cull et al., 2022).

This study focuses on exploring the impact of CBP on the employability of international students by evaluating the development of both technical and meta-skills and assessing the moderating function of student feedback in the study. The findings of this research are expected to deliver effective insight for post-secondary institutions, instructors, and policymakers to help design more influential empirical learning approaches to enhance the employability of graduate students.

Client-based Projects (CBPs)

Client-based learning provides an opportunity to work closely with industry professionals and apply the theories they learn in a scenario-based approach, which outlines a real business problem (Goodell & Kraft, 1991; Swan & Hansen, 1996). CBPs can differ in size, small or large scale, time durations, organization types (profit or non-profit), financial sponsorship with or without, and different outcomes such as community service or profit maximization (Tofighi, 2022).

When studies are combined with course content and a CBP, learning gets more realistic and students feel more interested and motivated (de los Santos & Jensen, 1985). McEachern (2001) proposes that "client projects challenge students in ways that not even the best-written case study or end-of-the-textbook chapter exercise can duplicate" (p. 211). Previous studies reveal that CBPs benefit students in building career development skills to accomplish in their future roles and are appreciated by employers (Cooke & Williams, 2004). In the meantime, students are likely to be more engaged and motivated to learn CBPs when they realize how it relates to their future career goals or professional development (Razzouk, Seitz, & Rizkallah, 2003). Educators and institutions also benefited from the CBPs as they can stay in touch with the current market trends and practices, enhance knowledge about a specific field, and build networking opportunities (Cooke & Williams, 2004) and potential

future research or consulting opportunities (de los Santos & Jensen, 1985). CBPs have wide recognition due to their high-impact practices in post-secondary higher education since they integrate theory with practice through experimental learning.

Moreover, real-world scenarios in CBPs link educational institutes and local communities, strengthening the relationships and mutual benefits (Cooke & Williams, 2004; Goodell & Kraft, 1991; Razzouk et al., 2003). CBPs benefited students in developing technical knowledge, analytical skills, academic confidence, problem-solving and critical thinking, leadership, creativity, accountability, sense of ownership, and team management in a professional setting (Tofighi, 2022).

In addition to the employability skills, CBPs promote adaptability and resilience across variations in original scopes, client needs, and real-world restrictions. The classroom simulation studies do not require in-depth thinking to deal with uncertainty and make strategic adjustments to the evolving market needs (Zhang & Scribner, 2024). These experiences reflect professionalism by balancing competing demands, productivity, and enhancing career readiness and confidence in real-world settings. Although the complexity of the client problems forces students to understand and think differently, and encourages them to bring more diverse, innovative solutions that are tailored to specific constraints (Bacon & Stewart, 2022; Lange et al., 2018; Ye et al., 2017). Completing a CBP allows students to feel self-satisfaction, since they contributed to making a change by solving a specific issue for their client (Dingus & Milovic, 2018). Some universities define CBPs as a ‘service-based learning’ designation since the benefits that students provide to the client organization by creating real value (Dingus & Milovic, 2018).

The success of the CBPs depends on the alignment between the instructor, the student, and the client based on project scope, project outcomes, timelines, and change management

(Zhang & Scribner, 2024). Positioning the project outcomes with the learning using the multi-source assessments, and feedback from multiple sources such as the instructor, client, peer students, and self-reflection, would fairly evaluate the assurance of learning (Dingus & Milovic, 2018). Finally, the confidentiality should be protected for client data and organizational information to align with the professional standards and sustain the long-term relationship.

1.1 Research Problem and Research Gaps

Employability of the international students in Canada poses a significant challenge due to cultural barriers, language inefficiencies, lack of awareness of the Canadian workplace climate, and lack of Canadian work experience. While CBPs are widely applied in academic learning to bridge the gap between required employability skills. So far, there are limited experimental studies discussing how these projects impact the employability of international students. The previous studies emphasised that CBPs enhance the technical skills, such as handling hardware, computer applications, and industry applications, and meta-skills such as creativity, communication, collaboration, critical thinking, and adaptability (Hossain et al., 2020; Rohm et al., 2021). Nevertheless, most studies focus on CBPs of domestic students and make comparisons with theoretical learning outcomes.

This creates a research gap for assessing the impact of CBP on the employability of international students in Canada, to determine whether CBP can address the gap between theoretical learning and the employability of international students, specifically when preparing them with the relevant skills valued by the Canadian job market. Furthermore, some unreliable feedback suggests CBP can enhance confidence and career readiness. Therefore, accurately addressing this gap is essential for improving academic curricula, strategies, and policies with the aim of safeguarding international students' employability

skills. This study focuses on exploring how CBP strengthens international graduates' readiness for the Canadian workforce.

1.2 Research Questions

By analyzing the research problem and gaps, this research is developed to answer the main research questions as follows,

Research Question 1. To what extent do the technical skills attained through CBPs influence the employability of international students in higher education institutions?

Research Question 2. To what extent do meta-skills (creativity, critical thinking, collaboration, and communication) attained through CBPs as a higher-order construct influence the employability of international students in Canada?

Research Question 3: How does the student feedback moderate the relationship between technical skills, as well as meta-skills, and the employability of international students in Canada?

The above three research questions are designed to explore the applicability of CBPs for international students' employability. Eventually, answering these research questions will be beneficial to students, educators, and policymakers on how CBPs can be sharpened to elevate international student employability and career accomplishment in the Canadian labour market.

1.3 Research Objectives

The primary objective of this study is to examine the impact of the CBPs on the Employability of International Students in Canada. The following specific objectives have been created to strengthen the main objective:

• To analyse the impact of CBPs on the employability skills of international students in Canada.

• To assess the influence of technical and meta-skills gained from CBPs on the employment outcomes of international students.

• To provide recommendations to educators, program designers, and policymakers on how CBPs can be optimized to better enhance the employability of international students.

• To evaluate the suitability of CBPs in engaging students and equipping them with the necessary skills for the Canadian workforce.

1.4 Outline of the Report

This report is arranged into eight chapters. The first chapter introduces the background of study by providing an overview of the study, research problems, research questions, and research objectives. The second chapter delivers a comprehensive review of the existing literature, highlighting previous studies on client-based learning and employability skills through a theoretical framework.

The third chapter presents research design, hypothesis development, theoretical background, and the proposed research design. The fourth chapter delivers the research methodology through data collection procedures, analytical tools, and ethical considerations. The data collection process ensures the participant's anonymity and the confidentiality of the data.

The fifth chapter explores the research results and findings of the data through descriptive statistical analysis, data cleaning, analyzing model results through patterns and trends, and finally validating the hypothesis. The sixth chapter presents a discussion of findings and the theoretical and practical implications of the study, linking the study findings and questions. The seventh chapter concludes the findings by addressing constraints and limitations and outlining guidelines for future research opportunities. The last chapter mentioned the list of references utilized across this study.

Chapter 2: Literature Review

This chapter elaborates on the existing literature on how skills gained through CBPs influence the employability of international students in Canada. The Literature review starts with the technical skills that act as industry-specific competencies in real business cases. The second part describes the meta-skills, also known as soft skills, mainly creativity, critical thinking, communication, and collaboration, and these skills encourage students to adapt to a professional work environment smoothly. The literature review explores how the moderator role of student feedback contributes to skills enhancement and employability after graduation. Finally, the review concludes by discussing how CBPs affect the overall employability of international students by addressing the gap between the theoretical learning and current market demand.

2.1 Technical Skills

Technical skills are often referred to as professional field-associated competencies that are needed to complete certain tasks accurately. It is called industry-specific knowledge and proficiency to complete a specific task (Mwita et al., 2024). Technical skills are sometimes considered job-specified skills as they are a critical component in fulfilling labor market demand (Dolce et al., 2019). Different technical skills, including numeracy skills, basic computer skills, and work-related software skills, are required for international students to do their job more effectively (Hossain et al., 2020). These skills serve as a bridge to connect theories to practical application in the job market. Students usually get technical skills through work experience, internships, mentorships, and tutorials related to their studies (Etomes, 2021). According to McMurray et al. (2016), technical skills strengthen the individual's employability from the employer's perspective. CBPs help students develop technical skills that make them ready for the future job market (Rohm et al., 2021).

In addition to the basic computer skills and numeracy skills, employers require field-specific technical skills with the current market trend, such as data analytics, handling accounting software, and technology integration. International students need exposure to these technological tools to cover the gap between academic learning and employer expectations. According to Mwita et al. (2024), technical skills enable credibility in the current job market, and Dolce et al. (2019) emphasize that these technical skills, often called hard skills, act as a focal point of the labour market. Therefore, providing a structured theoretical background from the coursework, with practical applications through a CBP, strengthens the international students' capacity to meet employer expectations effectively.

Likewise, CBPs have a significant impact on improving technical competencies among students. By engaging in these projects, students can practice some industry-specialized tools like knowledge management systems, customer relationship management

systems, data visualization tools, and project management software in a live organizational context. According to Rohm et al. (2021), experimental learning not only benefits technical skill development but also promotes technology integration with reflective thinking, situational analysis, and critical analysis skills to make sound business decisions in their future careers. The coordination between technical and cognitive skills supports students in building transferable skills (Gouda-Vossos et al., 2023), which can be applied to different industries to ensure compliance and employability.

2.2 Meta-skills

Apart from technical skills, international students must have meta-skills for all occupational levels, from entry-level to top management (Beachum & Krallman, 2024). Meta-skills are broad and defined as adaptable skills that help people to use essential technical and practical skills more effectively, which include critical thinking, problem-solving, interpersonal skills, communication, and collaboration (Rohm et al., 2021). In today's competitive world, employers are deliberately seeking meta-skills from graduates since they can convert theoretical knowledge across different industries, familiarize themselves with new work cultures, and adapt to the rapid external and internal changes. Technical skills are outdated with the current market trends and technological advancements, but the meta-skills remain transferable for any changes and relevant to the future career growth of the students. According to the previous studies, CBPs provide higher levels of intellectual development and skill growth, influencing students' meta-skills growth and enabling them to obtain a competitive edge in the employment landscape (Tofighi, 2022).

The partnership of 21st-Century Learning recognized certain skills that students need to be equipped with, mainly the 4Cs (creativity, critical thinking, collaboration, and communication), among other skills (Rohm et al., 2021). These 4Cs are not only beneficial to academic skills but also align with the practical requirements within the organization, such as

leadership, team collaboration, and innovation. Many organizations implement digital transformation, automation, and technology advancement as a core strategy; the transferable role of meta-skills supports international students to make inclusive changes, remain competitive with the advanced technologies, and stay resilient. These skills act as a global drive for future success, prepare students to adapt to fast-paced environments with advanced technologies, and attain competitive advantages in future careers (Goto & Goto, 2024).

2.2.1 Creativity

Creativity is an important skill that provides solutions to complex problems using a novel and appropriate way (Rohm et al., 2021). Creativity always provides innovative solutions using creative thinking; thinking abilities, motivation, and expertise that encourage creativity (Goto & Goto, 2024). Nevertheless, studies show that creativity is not all about new ideas or prospects, which highlights the need for adapting existing knowledge from coursework into unfamiliar circumstances, eventually creating highly transferable skills for graduate employability (Gouda-Vossos et al., 2023). With the evolving technologies, the ability to address the problems differently and develop flexible and timely resolutions is a potential requirement for graduate students. Also, organizations progressively demand that graduate students demonstrate creativity in their professional lives since it makes them differentiate their career development strategy.

Previous studies reveal that experimental learning is a practical teaching approach that fosters creativity and innovation (Tsai et al., 2024). CBPs bridge international students with real-world business issues where creativity becomes a core competency. This work environment fosters innovation, proactiveness, and integrates technical skills and meta-skills such as adaptability and creativity (Tofighi, 2022). This indicates that creativity is nurtured when students work with others and participate in real-world business cases as a whole rather

than working alone. Notably, creativity empowered students to become adaptable professionals who can succeed in an ambiguous, uncertain, and energetic career landscape.

Moreover, creativity positively correlated with academic performance and workplace readiness by acting as a link between learning and application in professional settings (Tsai et al., 2024). As stated by Tsai et al.'s 2024 findings, creativity not only mediates the link between self-efficacy and employability but also independently contributes to students' career readiness. The CBPs encourage students to do experimentation and reflections on what they learned, and foster creativity as a habitual thing in their lives. As a result, international students equipped with creativity skills are positioned as highly career-ready individuals in a diverse professional environment.

CBPs are an active learning technique that provides opportunities for students to gain innovative, creative, and practical experience (Tofighi, 2022). Therefore, creativity is a strong independent variable for the employability of international students as it is boosted by the client-based learning environments.

2.2.2 Critical Thinking

Critical thinking is evaluating alternatives, analysing arguments, interpreting, and making implications to explain and understand complexities (Rohm et al., 2021). Petrov (2025) defined critical thinking as students' ability to examine, identify, scrutinize, and prioritize appropriate information and rationalize their decisions with recommendations. It is a successful reasoning approach that identifies connections, concepts, and disciplines to make judgments meaningfully (Ramli et al., 2024). The previous literature illustrates that there is a significant gap between the career readiness and critical thinking skills of international students and their potential. Critical capacity is an essential career requirement for international students to meet the expectations of today's society.

According to Yu et al. (2013), graduate students often feel that they are well-prepared with critical thinking abilities, but employers weigh it as a moderate level. Likewise, Viviers (2016) highlighted that students supposed that they have moderate to high levels of critical thinking exposure, as employers ranked critical thinking as the core competency for employability. The perceived critical thinking exposure and required level create a gap for higher educational institutions to reinforce critical thinking capabilities to comply with employer expectations (Musametov, 2021). Therefore, post-secondary institutions should incorporate critical thinking into all study areas through practical reflections, such as interdisciplinary CBPs, to bridge the employability gap.

Thus, educators have a great responsibility to transform students for the Anticipated workforce trends and to develop academic profeciencies through critical thinking abilities (Ramli et al., 2024). Previous studies highlight that students who engaged with CBPs benefited from critical thinking skills, which are always connected with the other imperative skills. In particular, Critical thinking is frequently linked with creativity, teamwork, and communication, as the process of evaluating and upgrading ideas requires collaboration, exchanging views, and justifying the alternatives. Furthermore, critical thinking abilities support students to build confidence and learn to prove their opinions with evidence-based reasoning and logical analysis (Tofighi, 2022).

For instance, critical thinking skills depend on unique attributes such as self-efficacy, innovation, and need for complexity (Tofighi, 2022). Consequently, students who are equipped with critical thinking skills will become more adaptable, innovative, and resilient in their career development. Hence, the critical thinking skills are a strong independent variable for the employability of international students.

2.2.3 Communication

Communication is critical to social, personal, and future career success in today's landscape. Globalization has fostered cross-cultural understanding and social relationships, highlighting the need for effective communication (Goto & Goto, 2024). Communication is defined as an articulate exchange of information, and communication skills are segregated into verbal and non-verbal skills. It is a part of professional skills that is required for the success of students in their future careers (Wu et al., 2023). Communication skills are not only associated with expressing ideas, but communication is also the foundation of teamwork, problem-solving skills, understanding others, being understood by others, managing differences, and social and industry relationships (Fantini, 2024).

CBPs help students connect with the network and enhance their communication skills for their career progression (Tsai et al., 2024) by giving hands-on experience on written and verbal communication skills, presentation skills with clients, engaging with the audience, and justifying reasons, opinions, and assumptions (Rohm et al., 2021). The CBPs develop technical communications skills as well as cross-cultural competence, where the students need to mingle with clients from different social, cultural, and professional backgrounds. The capability to navigate with different cultures with mutual respect strengthens the clarity and awareness of the communication.

Moreover, CBPs allow students to communicate clearly with different groups and different professions. These experiences promote dynamic management competencies, including confidence, compliance, and conflict resolution (McCale, 2008; Rohm et al., 2021; Thompson et al., 2021). Besides that, effective communication influences trust, professional relationships, and clarity of expression by reducing the risk of misunderstandings. When students thoroughly strengthen their communication skills, they develop influential and

negotiation skills, which are essential for leadership roles in their future careers (Finch, Nadeau, & O'Rourke, 2013).

When students collaborate with the clients, they will learn active listening, empathy, and adapt diverse communication strategies to address different audiences. Active listening enhances the understanding of underlying concerns, and empathy reinforces emotional intelligence to respond appropriately to emotions or challenges stated by clients. Besides, adapting to diverse communication strategies, such as formal or informal, increases the flexibility to deal with the multidisciplinary frameworks. These networking skills are essential for students to emerge as leaders in their careers (Wu et al., 2023).

2.2.4 Collaboration

Collaboration encourages students to use their individual skills to work together, stay motivated, and work toward a shared objective. Team collaboration is an essential skill for performing effectively as a part of a team (Rohm et al., 2021). According to the students' perspectives, team collaboration can be defined in two ways: the first is to complete the specific group work efficiently, and the second is a process of cultivating individual and collective knowledge. The second viewpoint highlights that team collaboration embeds cooperation, flexibility, and interactive skills (Volkov & Volkov, 2015). From this method, students work as real-world cross-functional collaborative groups and prepare their mindset for future career readiness.

The previous studies have shown that CBPs help students enhance collaboration (Strauss, 2011), team dynamics, a proper feedback mechanism, address challenges and problems as a team, and share individual responsibility. Collaboration nurtures transversal competencies such as adaptability, innovative and critical thinking, problem solving, self-directed learning, and communication. Other than the project outcomes, these competencies

are difficult to transfer in traditional in-class learning. More importantly, these competencies boost career readiness by preparing students to engage with real-world complexities (González-Cespón et al., 2024).

When working in multidisciplinary teams with different fields and disciplines, they are often better prepared for future careers (Rohm et al., 2021). Moreover, CBPs provide a unique platform for students, often referred to as engagers, to directly engage with educators and employers, which is called the "3Es" partnership (Fletcher-Brown, Knibbs, & Middleton, 2015). 3Es partnership supports students to collaborate successfully within their team and provide timely responses to employers' needs, manage time, and project outcomes effectively. This hands-on experience enables students to enhance their communication skills, negotiation skills, and become responsible among the team members. Moreover, interdisciplinarity in collaboration integrates diverse academic knowledge, values, and perspectives, and encourages students to comprehend how theoretical learning redesigns the real-world demand. Also, the collaboration allows them to analyze complex situations to deliver innovative resolutions that they cannot accomplish individually. When students engage with CBPs, they particularly learn the importance of redistributing tasks among members when facing challenges and learn from the group dynamics to adapt the situation well (Fletcher-Brown, Knibbs, & Middleton, 2015).

2.3 Student Feedback

Student can enhance their technical and meta-skills by engaging with real-world business cases. These skills impact the employability, which is determined by how students interpret the CBP outcomes. Therefore, student feedback plays a vital role in client-based learning, which indicates the self-evaluation of how CBPs build technical and meta-skills and their impact on employability. According to Tofighi (2021), student who engaged in CBPs not only benefited from academic excellence but also enhanced their career confidence, hard

skills, and soft skills. Their positive feedback reveals that client-based learning experience helps them develop employability skills. Moreover, the previous studies reveal that the students who engaged in client-based learning have developed collaboration, leadership skills, and project management skills from the post-surveys, and their feedback magnifies that these skills would be helpful to their future career development (Kricsfalusy et al., 2016).

Student feedback links the theoretical learning and practical application. The previous case studies emphasized that the feedback mechanism helps students to reveal their improvements through CBPs, strengths, and weaknesses in determining their employability skills (Zhang & Scribner, 2024). Childers et al. (2020) stated that student perspectives and evaluations of CBPs elevate the level of confidence in problem-solving, critical thinking, and collaborative techniques. Therefore, student feedback exemplifies attitude transformation and skill enhancement, indicating that students with high self-efficacy assign a higher value to CBPs. This emphasizes that student feedback is a larger concept than sharing opinions; it is an analytical tool that connects to student evaluations, learning outcomes, and employability skills.

The previous studies about work-integrated learning (WIL) by Ramukumba (2021), student feedback address the imbalance between the formal education and industry demand by elaborating how students were prepared and challenges encountered, and skills developed through experimental learning. The student feedback supports post-secondary institutions in redesigning the programs so that future students are better aligned with industry expectations. Students' feedback is an influential factor for improving the quality of academic learning in order to reinforce employability pathways. Moreover, their ability to trace these technical and meta-skills to future career development elaborates the moderating role of student feedback to strengthen the correlation between technical and meta-skills and employability.

2.4 Employability

Employability is a set of skills, abilities, understanding, and individual traits that make an individual more likely to be confident and be effective in their career, which is beneficial to themself, the organization, the community, and the whole economy (Galloway, Marks, & Chillas, 2014). Employability is hard to measure and often associated with different skills such as creativity, flexibility, collaboration, management, communication, technical awareness, time management, and independence (Galloway, Marks, & Chillas, 2014). For international students, employability is not all about obtaining qualifications; they have to adapt to different cultural norms, be able to adjust to labour market demands, and gain the global competencies required by the market (Tran & Soejatminah, 2016). The ability to convert academic learning into professional careers evaluates the success of the international student transition.

Moreover, employability emphasizes how an individual can convert these skills across different industries by exhibiting adaptability through diverse market conditions. Fletcher-Brown, Knibbs, and Middleton (2015) stated that an effective graduate student's employability curriculum should include a comprehensive understanding of the subject, technical and meta-skills, deployment strategies, efficacy beliefs, and meta-cognition to enhance the readiness for the workplace. CBPs provide an experimental learning opportunity by consulting real-world business cases with critical thinking and innovative approaches. This enables students to evaluate their academic understanding in uncertain situations to elevate adaptability and problem-solving abilities. The practical nature of the CBPs ensures that employability goes beyond the theoretical knowledge, which requires core competencies and confidence when applying knowledge in real-world situations. These active learning methods help students to get competitive advantages in their careers (Tofighi, 2022). Simultaneously, employability demands active learning, as students can evaluate their

strengths and weaknesses during the project implementation. Those replications help to figure out the areas to develop, and provide guidelines to become employable, as it is a continuous process.

According to the literature, students who participated in CBPs are prepared for the current job market through technical and meta-skill development (Beachum & Krallman, 2024). This preparation consequently highlights the need for transferable skills, including leadership, creativity, critical thinking, collaboration, and communication, which employers constantly value along with technical skills. Forming a link between academic knowledge and transferable skills, international students can position themselves as highly qualified, adaptable applicants in a competitive job market.

Chapter 3: Research Model, Hypothesis Development, and Theoretical Background

This chapter introduces the research model to guide the study by developing a detailed hypothesis and a theoretical background. The chapter highlights the influence of CBPs on the employability of international students through technical and meta-skill development. Additionally, it determines how meta-skills interrelate with technical proficiencies to influence employability skills. By integrating these variables into a structured research model, including independent and dependent variables and a moderator, this conceptual framework connects theory with an experimental survey. This delivers the solid background for the methodology and analysis part in the subsequent chapters.

3.1 Research Hypothesis

In alignment with the research objectives considered in the earlier chapter, the following research hypotheses were designed to guide the study. These hypotheses are developed to test the relationships between CBPs, the advancement of technical and meta-skills, and the employability of international students in Canada. Moreover, the hypotheses highlight the moderating role of student feedback in bridging the connection between technical and meta-skills attained through CBPs and the perceived employability of international students in Canada.

H1: Higher levels of Technical Skills are positively associated with Employability among international students.

Technical skills are considered hard skills as they are a critical component in fulfilling labor market demand (Dolce et al., 2019). CBPs have a substantial influence on improving technical competencies among students (Tofighi, 2022). This hypothesis states that the development of technical skills through CBPs, such as professional field-associated competencies and industry-specific skills (numeracy skills, technology integration, basic

computer skills, and work-related software skills) (Hossain et al., 2020), directly influences international students' employability.

H2: Higher levels of Meta-skills are positively associated with Employability among international students.

Meta-skills are required for every occupational type, from the preliminary level to high level (Beachum & Krallman, 2024). Employers are intentionally looking for meta-skills from graduates as meta-skills can convert theoretical knowledge to practical uses, such as new work cultures, and adapt to the rapid external and internal changes. This hypothesis states that the development of Meta-skills, known as high-order capabilities, such as adaptable soft skills- creativity, critical thinking, teamwork, allows international students to adapt to fast-paced environments (Rohm et al., 2021), and directly influences international students' employability.

H2a: Creativity makes a positive formative contribution to Meta-Skills.

Creativity is bringing new perspectives to complex situations using a novel and appropriate way (Rohm et al., 2021). Creativity is positively correlated with academic excellence and workplace readiness by connecting learning and application in a professional context (Tsai et al., 2024). This hypothesis describes that the advancement of creativity skills is an essential component of meta-skills, allowing international students to develop innovative solutions using novel perspectives, fostering the adaptability to new work settings (Rohm et al., 2021), and directly influencing international students' employability.

H2b: Critical thinking makes a positive formative contribution to Meta-Skills.

Critical thinking is an essential capability for examining, identifying, scrutinizing, and prioritizing information and rationalizing their decisions with recommendations (Ramli et al., 2024). This hypothesis states that the advancement of critical thinking skills allows

international students to evaluate alternatives, analyse arguments, interpret, and draw implications (Rohm et al., 2021). Critical thinking encourages the analysis and decision-making skills, which are a developmental factor that reinforces meta-skills and directly influences international students' employability.

H2c: Collaboration makes a positive formative contribution to Meta-Skills.

Team collaboration is a critical skill for performing effectively as a part of a team (Rohm et al., 2021). Collaboration nurtures transferable proficiencies such as adaptability, innovation, reflective thinking, reasoning, and communication. This hypothesis states that the development of collaborative skills allows international students to promote interpersonal skills, responsibility, and teamwork (Strauss, 2011). Stimulating collaborations as a formative factor that strengthens meta-skills and has a direct influence on international students' employability.

H2d: Communication makes a positive formative contribution to Meta-Skills.

Communication is a coherent exchange of information, and communication skills are segregated into verbal and non-verbal skills. These skills are not only associated with expressing ideas but also the foundation of teamwork, problem-solving skills, understanding others, and being understood by others (Fantini, 2024). This hypothesis states that the development of effective communication skills allows international students to express ideas clearly and perform effectively as teams (Fantini, 2024). Also, it positioned communication as a formative factor that strengthens meta-skills and has a direct influence on international students' employability.

H3a: Student Feedback moderates the relationship between Technical and Employability.

Student Feedback refers to the self-evaluation in CBPs learning, with how students acknowledge and express key capabilities, including technical skills (Tofighi, 2021). This indicates that, reflecting through the feedback process, students can reinforce their employability by connecting academic knowledge with career preparedness. This hypothesis states that student feedback amplifies the impact of technical skills on employability, since feedback mechanisms allow students to reflect on their development and express their abilities and competencies effectively in a professional atmosphere.

H3b: Student Feedback moderates the relationship between Meta-skills and Employability

Students can critically evaluate the development of the high-order meta-skills (communication, collaboration, creativity, and critical thinking) through an effective feedback mechanism (Childers et al., 2020). This self-reflecting exaggerates the perceived benefits of meta-skills, emphasizing their effort to enhance employability. Student feedback is also proposed to strengthen the link between meta-skills and employability by strengthening how students recognize, sharpen, and apply these higher-order skills in a professional environment.

3.2 Research Model

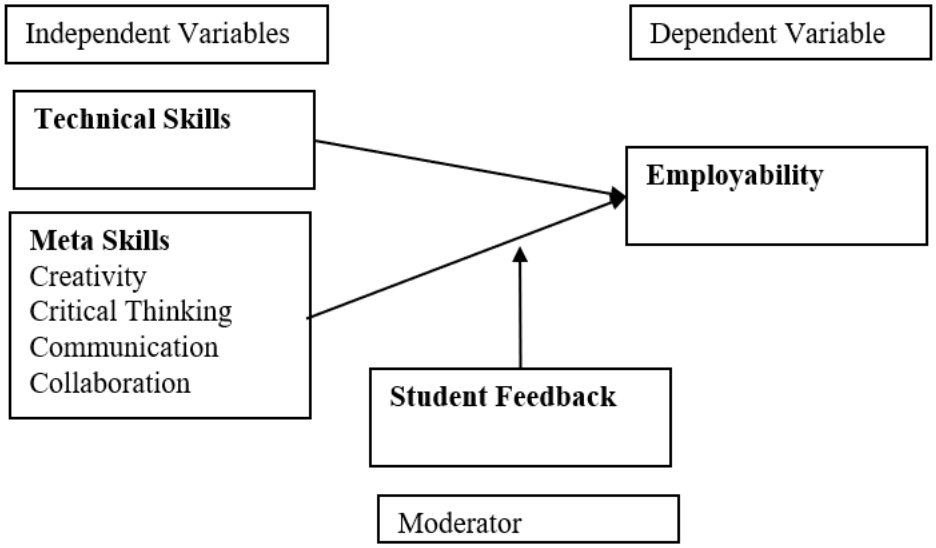
The theoretical structure of the study is demonstrated by the research model. Which linked CBPs to the employability of international students using technical and meta-skills. These skills are categorized under independent variables as they influence the outcome of employability. As such, students obtain technical and meta-skills as key competencies by participating in CBPs. The technical skills reflect industry-specific competencies and practical skills that are obtained through CBPs (Mwita et al., 2024). While meta-skills are considered soft skills, such as creativity, critical thinking, collaboration, and communication, they transfer the students' abilities to adapt to different work settings (Rohm et al., 2021).

Employability is classified as a dependent variable in the conceptual framework, which indicates the student's readiness to perform effectively in the workplace or the readiness to transition from university to the labour market. The arrows from technical skills and meta-skills to employability demonstrate the hypothetical relationships, which are assumed as positive, and a higher level of skill development boosts the employability of the students.

Furthermore, student feedback plays a moderator role in this research model. Feedback is considered a significant component since it enables students to exemplify what they learn, understand their progress, and better adapt the skills. The moderator role outlines that the connection between independent and dependent variables is not sequential, but it could be strengthened or weakened by the moderator. For instance, favourable students' feedback strengthens the relationship between CBPs and employability.

Figure 1

The Conceptual Framework of the study



Note. This research model illustrates the impact of skills gains from client-based projects and employability outcomes, while student feedback serves as a moderating role. This model was developed based on Tofighi, M. (2022). Differential Effect of Client-Based and Non-Client-Based Projects on Marketing Students' Course Performance and Evaluations. *Marketing Education Review,* 32(1), 65–81. https://doi.org/10.1080/10528008.2021.1871851 and Tsai, C.-F., Chang, C.-P., Chen, T.-L., & Hsu, M.-L. (2024). Exploring the Influence of Personality Traits, Self-Efficacy, and Creativity on Employability for Hospitality and Tourism College Students. Sustainability (2071-1050), 16(4), 1490. https://doi.org/10.3390/su16041490 and Hossain, M. M., Alam, M., Alamgir, M., & Salat, A. (2020). Factors Affecting Business Graduates' Employability--Empirical Evidence Using Partial Least Squares (PLS). *Education & Training*, 62(3), 292–310. https://doi.org/10.1108/ET-12-2018-0258

Chapter 4: Research Methodology

This chapter outlines the research methodology framework applied to validate the hypothesis and research objectives. It describes the systematic sampling strategy and target population methods used in data collection, the questionnaire format and measurement scales used to collect data, the statistical data analysis process, and interpretation to magnify the reliability, consistency, and validity of the findings. Finally, the ethical consideration of the study is to clarify how participants' rights and identity are protected to maintain the academic integrity and ethics of the study.

4.1 Data Collection

Data were collected using an anonymous online questionnaire survey created in Qualtrics and shared with students who have already completed or are completing CBPs as a part of their coursework. The participation in the survey is totally voluntary, and the data collected is anonymous.

This study adopted a quantitative research design since the quantitative survey methods are widely applied in employability research; as such, Hossain et al. (2020) examined factors affecting students' employability skills using survey-based data analysis. Moreover, Rohm et al. (2021) emphasised the value of client-based learning for developing employability skills from real-world business cases. Moreover, the quantitative method is appropriate for this research as it enables a broader sample of students and traces trends in their responses.

A total of 580 responses were gathered through the data collection step, and after data cleaning and missing data, 526 responses were identified as acceptable. This strong data collection confirmed the reliability of the analysis.

4.2 Sampling and Population

The target population was selected from current international students or those who have graduated within the last 12 months from a Canadian post-secondary institution, colleges, and universities across British Columbia.

More importantly, the sampling scope was defined by the students who had participated in or are currently participating in a CBP as a part of their coursework. These CBPs involved structured programs such as Riipen and industry-related studies. A non-probability convenience sampling method was applied to determine the samples.

The targeted sample size is more than 420 responses, and this study has collected 580 responses, which exceed the target size, indicating the high reliability. The targeted age group is 20-35, as the majority of undergraduates and graduates represent this demographic composition of international students in Canada. However, the survey was open to any age limit, as international students represent diverse age groups regardless of their studies.

4.3 Survey Instrument and Measurement Scale

Data were collected using a structured web-based software, and the online survey was hosted on Qualtrics. The survey is divided into four sections.

The first part of the survey was developed to collect demographic data such as age, gender, educational programme, and employment status.

The second section was designed to evaluate independent variables such as the technical and meta-skills development through CBPs.

The third section was developed to assess the moderating influence of student feedback

Lastly, the employability outcomes were evaluated through structured questions to measure the validity of the dependent variable.

Measures and Instrumentation

All constructs in this study were evaluated through multi-item scales improved through previously validated instruments in the employability and higher education literature reviews. A seven-point Likert scale (1 = strongly disagree to 7 = strongly agree) was used for all items to capture the degree of agreement, including statements related to skills, feedback, and employability. The seven-point Likert scale enables stronger variability in responses and enhances reliability compared to shorter scales (Dolnicar & Grün, 2007).

Technical Skills

Technical skills were measured through eight items reflecting students' perceptions of the discipline-specific and transferable technical competencies generated through CBPs. Such skills are knowledge acquisition, IT-related skills, adaptability, and problem-solving in real-world contexts (e.g., "The CBPs allowed me to gain subject-specific knowledge"). These measures were cited from Ali (2017), Mwita, Mwilongo, and Mwamboma (2024), and Etomes (2021).

Creativity

Creativity was measured using five items that assessed students' capacity to generate novel ideas, propose solutions, and manifest creative problem-solving during CBP (e.g., "Through CBPs, I often come up with innovative and practical ideas during projects or tasks"). These measures were cited from Tsai et al. (2024) and Etomes (2021).

Critical Thinking

Critical thinking skills were measured through five items capturing students' ability to evaluate multiple perspectives, question assumptions, and apply reasoning in problem-solving (e.g., "Through CBPs, I have developed my critical thinking skills in making

reasoned judgments from opposing perspectives"). These measures were taken from Tsai et al. (2024).

Communication

Communication was operationalized with eight items reflecting both written and oral competencies, as well as the use of digital platforms for effective professional interaction. Items included, for example, "The CBPs improve my ability to communicate my ideas in a real-world context" and "Through CBPs, I learned to use digital media (WeChat, email, etc.) to express my views and ideas accurately." Sources for these measures included Kricsfalusy, George, and Reed (2018), Tsai et al. (2024), Wu, Xu, and Philbin (2023), and Rohm, Stefl, and Ward (2021).

Collaboration

Collaboration was assessed with six items addressing teamwork, interpersonal effectiveness, and multidisciplinary engagement (e.g., "The CBPs encouraged and supported me to develop interpersonal (teamwork) skills"). These measures were taken from Kricsfalusy et al. (2018), Tsai et al. (2024), Parsons and Lepkowska-White (2009), and Rohm et al. (2021).

Student Feedback

The moderating variable, student feedback, was evaluated using four items adapted through meta-skills by Mwita et al. (2024). Items evaluated whether students provided constructive feedback on their skills and whether such feedback enhanced their confidence in employability-related outcomes (e.g., "Through CBPs, the skills and abilities that I have earned are what employers are looking for").

Employability

Employability, the outcome construct, was measured using six items reflecting perceived readiness for the labor market. Items emphasized confidence in gaining employment, relevance of project-learned skills to workplace context, and ability to solve real-world problems (e.g., “International students participating in CBPs with better soft and technical skills have a higher chance of getting employed”). Measures were adapted from Gaumer, Cotleur, and Arnone (2012), Mwita et al. (2024), Tofighi (2022), McCale (2008), and Kramer-Simpson, Newmark, and Dyke Ford (2015).

All these scales indicated strong **content validity** through reliance on established measures, and they were pilot-tested for clarity and related appropriateness for the study. The measurement model was validated through confirmatory factor analysis in SmartPLS, with reliability, convergent validity, and discriminant validity discussed through the latter section.

Pilot Study

Before launching the full-scale survey, a pilot project was conducted to ensure the clarity, reliability, and contextual relevance of the measurement instruments. A small sample of 25 international students studied in Canadian higher education institutions was recruited for this pre-test. The participants had prior experience with CBPs, ensuring their feedback would be meaningful and applicable.

4.4 Data Collection Procedure

The data collection process starts with the recruitment process. Participants were invited to the recruitment via email and social media outreach.

Email invitations were shared with international student bodies, faculty referrals, academic departments, and career services in post-secondary institutions. Recruitment materials were

shared through email as an invitation to participation with an outline of the research, objectives, and a Qualtrics link to the survey.

Social media and other institutional networks data were collected through posts in international students' Facebook and WhatsApp groups, and LinkedIn and institutional platforms. The purpose of this recruitment method is to gather a distinct range of responses from different institutions and academic programs.

Direct outreach was conducted with the collaboration of faculty members, academic advisors, and student groups through direct invitations.

Participants will be notified that the contribution is voluntary, and their personal identifications will not be recorded or disclosed.

The whole data collection process was conducted online using the Qualtrics survey platform, which allows students to participate remotely. The online data collection approach safeguards the convenience of access regardless of geographical location and can reach a diverse range of responses. The survey was opened for a one-week period to gather the responses. The survey was designed with mainly closed-ended questions in an accessible format. The time duration was approximately 5-8 minutes.

4.5 Statistical Analysis Method

The collected data were imported into Excel for data cleaning and to identify the missing values prior to starting the analysis process. This research has used a diverse set of statistical techniques to gain a comprehensive understanding. Descriptive indicators such as mean, standard deviation, percentages, and frequencies were considered when understanding the distribution of technical and meta-skills, student feedback, and employability. Furthermore, descriptive statistics are used to review demographic characteristics and response patterns. SPSS (Statistical Package for the Social Sciences) software was applied for

the descriptive study. To analyze structural modeling and hypothesis testing and validate the relationship between CBPs and employability outcomes, inferential statistical techniques were employed.

To evaluate the hypotheses, the study employed Partial Least Squares Structural Equation Modelling (PLS-SEM) instead of the covariance-based SEM (CB-SEM) model. However, both techniques are broadly used for latent variable assessments; the selection of the modeling technique should align with the research purpose, objectives, model complexity, and data characteristics.

First, the study's purpose was prediction-oriented, targeting explaining variance in the dependent variable of employability and analyzing its key drivers. In these contexts, PLS-SEM is recommended since it maximizes the explained variance of endogenous constructs, while CB-SEM is mainly applied for theory confirmation and validations and goodness-of-fit evaluation (Hair, Ringle, & Sarstedt, 2011; Hair et al., 2019).

Second, sample size and data distribution concerns directed the decision. CB-SEM usually requires larger samples and supposes multivariate normality (Kline, 2016). PLS-SEM, whereas, is strong enough to handle deviations from normality and operates well with medium-scale samples, while making it appropriate for survey data where non-normal distributions are frequent (Sarstedt, Ringle, & Hair, 2019).

Third, the research model comprised hierarchical latent variables and integrative effects. Particularly, "meta-skills" were hypothesized as a second-order construct containing four skills: creativity, critical thinking, communication, and collaboration. CB-SEM frequently confronts identification problems with such formative–reflective higher-order structures, while PLS-SEM handles them efficiently by hierarchical component modelling (Becker,

Klein, & Wetzels, 2012). Furthermore, moderation analysis with interaction terms is more transparent in PLS-SEM, positioning it as the more realistic option for this study.

Finally, the research area of study of CBPs and international student employability outcomes remains moderately underexplored. PLS-SEM is broadly recommended for exploratory studies since the theory is still developing and emerging, as it highlights forecast and theory development rather than established theory validation (Hair et al., 2019). For these reasons, PLS-SEM was acknowledged as more applicable than CB-SEM in attaining the objectives of this research.

4.6 Ethical Considerations

This study was strictly aligned with the directions and guidelines of the University Canada West Research Ethics Boards (REB) to confirm that all the ethical standards were followed during the study. Participation in the survey is completely voluntary, and participants can leave the survey without penalties. More importantly, personal identification data will not be recorded in the study. At the beginning of the survey, participants had to submit their consent to process.

The survey was written in simple, clear language that everyone can understand easily, and if any participant required help to fill out the data, they could email the research supervisor for additional support.

Once the study is complete, data will be exported from Qualtrics and saved in an encrypted file on a password-protected device. No identifying information will be stored with the data. This data will be stored safely for five years in line with UCW research guidelines, after which it will be permanently deleted. Since this is a student research project, the data will be stored by the student researcher and then properly disposed of after the retention period.

This research project received formal approval from the University Canada West Research Ethics Board (UCW ethics agreement number is 202523). This confirms that the study is aligned with all ethical obligations for conducting research with human participation.

Chapter 5: Results and Findings

This chapter outlines the results and findings using statistical analysis of 526 survey responses. Firstly, it describes descriptive statistics to review demographic characteristics. Then, data cleaning and identifying missing values ensure the reliability of the dataset. Measurement model results evaluate the reliability and validity, while the structural model tests the hypothesis relationships using statistics. Finally, the chapter concludes by investigating the moderating impact of students' feedback and highlighting the connection of independent and dependent variables.

5.1 Descriptive Statistical Analysis

5.1.1 Gender

Table 1 below shows the gender distribution among 526 participants. The high percentage of respondents were female, 314 respondents (59.7%), 208 respondents (39.5%) were male, and 3 respondents (0.6%) preferred not to reveal their gender, and only 1 respondent (0.2%) selected gender identity as other.

Table 1

Frequency distribution of the gender of respondents.

Gender	Frequency	Percent (%)	Cumulative Percent (%)
Male	208	39.5	39.5
Female	314	59.7	99.2
Prefer not to say	3	0.6	99.8
Other	1	0.2	100
Total	526	100	—

Note. This table is self-created using SPSS software to illustrate the frequency distribution of the gender of respondents.

5.1.2 Age

Table 2 below exhibits the age distribution among 526 individuals who participated in the survey. Most respondents fell into the age group of 26–30 years (38.2%), followed by 21–25 years (37.8%), and a smaller percentage reflected the age groups of 31–35 (13.7%), 35–40 (5.3%), over 40 (4.2%), and less than 20 (0.4%). And 0.4% preferred not to reveal their age. The results reveal that more than 75% represent the 20-35-year-old young adult range.

Table 2

Frequency distribution of the age of respondents.

Age Group	Frequency	Percent (%)	Cumulative Percent (%)
Less than 20	2	0.4	0.4
21–25	199	37.8	38.2
26–30	201	38.2	76.4
31–35	72	13.7	90.1
35–40	28	5.3	95.4
Over 40	22	4.2	99.6
Prefer not to say	2	0.4	100
Total	526	100	—

Note. This table is self-created using SPSS software to illustrate the frequency distribution of the age of respondents.

5.1.3 Program Registered

Table 3 below exhibits the registered program distribution among 526 individuals who participated in the survey. Most respondents (98.5%) were enrolled in a Master's. Only 4 respondents (0.8%) were enrolled in Bachelor's, and 2 respondents each (0.4% each) reported Other or Prefer not to say. This indicates that the sample mainly consisted of postgraduate students.

Table 3

Frequency distribution of the Program Registered respondents.

Program	Frequency	Percent (%)	Cumulative Percent (%)
Bachelor's	4	0.8	0.8
Master's	518	98.5	99.2
Other	2	0.4	99.6
Prefer not to say	2	0.4	100
Total	526	100	—

Note. This table is self-created using SPSS software to illustrate the frequency distribution of the Program Registered respondents.

5.1.4 Employment States

Table 4 below exhibits the employment status of the respondents among 526 participants. A high percentage of participants, 312 (59.3%), reported being employed, 115 (21.9%) stated that they were unemployed, 69 (13.1%) were seeking employment, and 10 (1.9%) were self-employed. 9 respondents (1.7%) stated that they are not seeking employment at the moment, and 2.1% of respondents preferred not to say. These findings indicate that most respondents were employed while following the studies.

Table 4

Frequency distribution of the employment status of respondents.

Employment Status	Frequency	Percent (%)	Cumulative Percent (%)
Employed	312	59.3	59.3
Unemployed	115	21.9	81.2
Seeking Employment	69	13.1	94.3
Not seeking right now	9	1.7	96
Self-employed	10	1.9	97.9
Prefer not to say	11	2.1	100
Total	526	100	—

Note. This table is self-created using SPSS software to illustrate the frequency distribution of the employment status of respondents.

5.2 Data Cleaning and Missing Data

To enhance the quality, reliability, and accuracy of the dataset, several data cleaning methods were used, such as outlier detection and deletion.

At the initial screening process, 580 responses were screened to find the missing data. 31 surveys were removed from the dataset due to incompletion (not more than 20% answered).

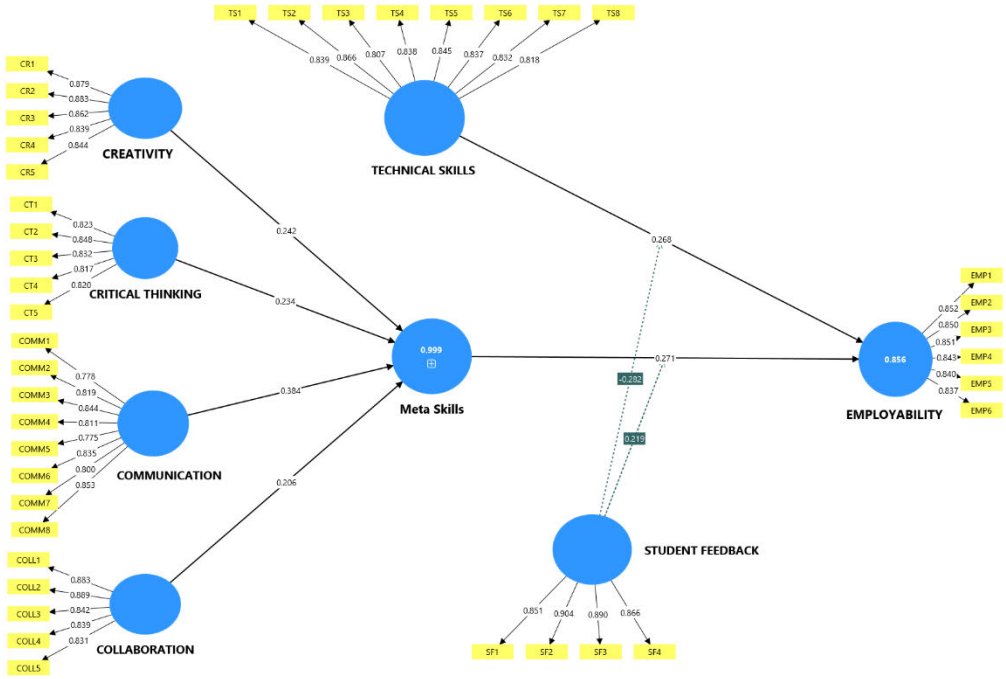
23 surveys were removed due to poor response quality, which demonstrated patterned answering, such as all questions marked as agree.

Five surveys were removed at the outlier detection stage, since they were flagged as extreme multivariate outliers, the chi-square cut-off values at $p < .001$, and their response patterns indicated implausibility.

5.3 Measurement Model results

Figure 2

Measurement Model Results



Note. This structural equation model was self-generated using Smart PLS 4 software to illustrate the relationships among independent variables, dependent variables, and moderators.

5.3.1 Construct Reliability and Validity

To analyse the reliability and validity of the measurement model results, we used standardized guidelines for PLS-SEM evaluation (Hair, Hult, Ringle, & Sarstedt, 2021). The analysis included tests for indicator reliability, internal consistency, convergent validity, and discriminant validity, as per the subsequent table,

Table 5

Constructs Sources, factor loadings, Reliability, and AVE

Scale Adaptation	Construct	Indicator	Factor Loading	Cronbach's Alpha	rho_A	Composite Reliability (CR)	Average Variance Extracted (AVE)
Adapted from Ali (2017), Mwita, Mwilongo, and Mwamboma (2024), and Etomes (2021).	Technical Skills	TS1	0.839	0.938	0.939	0.949	0.697
		TS2	0.866				
		TS3	0.807				
		TS4	0.838				
		TS5	0.845				
		TS6	0.837				
		TS7	0.832				
		TS8	0.818				
Adapted from Tsai et al. (2024) and Etomes (2021).	Creativity	CR1	0.879	0.913	0.913	0.935	0.743
		CR2	0.883				
		CR3	0.862				
		CR4	0.839				
		CR5	0.844				
Adapted from Tsai et al. (2024).	Critical Thinking Skills	CT1	0.823	0.885	0.886	0.916	0.686
		CT2	0.848				
		CT3	0.832				
		CT4	0.817				
		CT5	0.820				
Adapted from Kricsfalusy, George, and Reed (2018), Tsai et al. (2024), Wu, Xu, and Philbin (2023), and Rohm, Stefl, and Ward (2021)	Communication	COMM1	0.778	0.927	0.928	0.94	0.664
		COMM2	0.819				
		COMM3	0.844				
		COMM4	0.811				
		COMM5	0.755				
		COMM6	0.835				
		COMM7	0.800				
		COMM8	0.853				

Adapted from Kricsfalusy et al. (2018), Tsai et al. (2024), Parsons and Lepkowska-White (2009), and Rohm et al. (2021)	Collaboration	COLL1	0.883	0.909	0.911	0.933	0.734
		COLL2	0.889				
		COLL3	0.842				
		COLL4	0.839				
		COLL5	0.831				
Adapted from Mwita et al. (2024)	Student feedback	SF1	0.851	0.901	0.901	0.931	0.771
		SF2	0.904				
		SF3	0.890				
		SF4	0.866				
Adapted from Gaumer, Cotleur, and Arnone (2012), Mwita et al. (2024), Tofighi (2022), McCale (2008), and Kramer-Simpson, Newmark, and Dyke Ford (2015)	Employability	EMP1	0.852	0.920	0.920	0.938	0.715
		EMP2	0.850				
		EMP3	0.851				
		EMP4	0.843				
		EMP5	0.840				
		EMP6	0.837				

Note. This table of constructs, source factor loadings, reliability, and AVE was self-generated using Smart PLS 4 software for measurement model validation

Factor Loadings: All indicators remarkably exceed the advocated threshold of 0.70 (Hair et al., 2021), ranging from 0.755 (COMM5) to 0.904 (SF2), demonstrating that all the indicators are reliable. Also, technical skills indicate the strongest reliability of (0.807–0.866), followed by Creativity (0.839–0.883), Critical Thinking Skills (0.817–0.848), Communication (0.755–0.853), Collaboration (0.831–0.889), Student Feedback (0.851–0.904), and Employability (0.837–0.852) is the lowest.

Internal Consistency Reliability: This dimension was evaluated using Cronbach's alpha and Composite Reliability (CR). As all indicators exceed the recommended threshold of 0.70 (Nunnally & Bernstein, 1994), Cronbach's alpha ensures the internal reliability of the sample dataset.

rho_A Reliability: As all indicators overrun the recommended threshold of 0.70, it indicates a steady and reliable measurement.

Convergent Validity: This dimension was evaluated using Average Variance Extracted (AVE). Since every indicator reveals the AVE value was over 0.50, this specifies that more than half of the variance in their constructs, which aligns with the recommended threshold. Creativity shows the strong convergent validity of 0.839–0.883, which implies robust alignment between constructors and indicators.

Construct-Level Insights

Technical Skills demonstrates high reliability (α = 0.938, CR = 0.949) and AVE = 0.697, denoting that technical skills were developed by participating CBPs.

Creativity and Critical Thinking indicate high reliability (Creativity: AVE = 0.743; Critical Thinking: AVE = 0.686), denoting that meta-skills were developed by CBPs.

Communication had the lowest AVE (0.664), but it remains in the acceptable range and demonstrates that meta-skills were developed through CBPs.

Collaboration has a Cronbach's alpha of 0.909 and an AVE of 0.734, highlighting group collaboration skills as a meta-skill, developed over CBPs.

Student Feedback has a high AVE (0.771), which reveals that feedback outlined students' skill growth and employability confidence.

The employability construct (α = 0.920; AVE = 0.715) emphasizes that participating in CBPs efficiently fosters students' employability skills.

5.3.2 Discriminant Validity

Table 6

Discriminant validity by Fornell-Lacker

	Collaboration	**Communication**	**Creativity**	**Critical thinking**	**Employability**	**Student feedback**	**Technical skills**
Collaboration	0.857						
Communication	0.799	0.815					
Creativity	0.805	0.813	0.862				
Critical thinking	0.816	0.824	0.837	0.828			
Employability	0.826	0.832	0.769	0.757	0.845		
Student feedback	0.815	0.803	0.746	0.741	0.837	0.828	
Technical skills	0.791	0.811	0.739	0.724	0.836	0.75	0.835

Note. This table of Discriminant validity by Fornell-Lacker was self-generated using Smart PLS 4 software to evaluate discriminant validity

Discriminant validity was measured using both the **Fornell–Larcker criterion** (Fornell & Larcker, 1981) and the **Heterotrait–Monotrait ratio of correlations (HTMT)** (Henseler, Ringle, & Sarstedt, 2015). Both models provide a stronger evaluation and respond to academic literature to avoid reliance on a one model (Franke & Sarstedt, 2019).

Fornell–Larcker Criterion

Fornell and Larcker (1981) stated that the square root of a construct's average variance extracted (AVE) should be greater than its correlations with other constructs. A square root of the AVE value over **0.70** is usually in an acceptable range, showing satisfactory discriminant validity (Hair, Hult, Ringle, & Sarstedt, 2021). In this research, all constructs fulfilled this condition. For example, Employability ($\sqrt{AVE} = 0.845$) was higher than its correlation with

Communication (0.832), and Student Feedback (√AVE = 0.878) exceeded its correlation with Employability (0.837). This validates that the constructs explain further variance in their own indicators than they mixed with other constructs.

HTMT Criterion

Discriminant validity was further explained through the HTMT method. Henseler et al. (2015) suggested that the HTMT criteria should be **below 0.85** for theoretically distinct constructs; meanwhile, values below **0.90** are considered adequate in social science research. In this research, all HTMT values complied with the 0.85 requirement. For instance, Collaboration–Communication (HTMT = 0.776), Technical Skills–Employability (HTMT = 0.789), and Critical Thinking–Employability (HTMT = 0.838) remained below the threshold, indicating that constructs have discriminant validity.

Interpretation

Collectively, the Fornell–Larcker and HTMT results reveal that the constructs are **empirically distinct**, regardless of moderate-to-high correlations between some meta-skill measurements. These higher correlations (e.g., Collaboration–Communication) are theoretically assumed, as they reflect an interdependent variable of the broader **Meta-Skills higher-order construct**. Significantly, the constant satisfaction of both criteria strengthens the validity of the measurement model, ensuring that the constructs represent unique dimensions of employability while supporting the theoretical framework of the “4C’s” into a higher-order construct.

Table 7

Discriminant Validity by HTMT Criterion

	Collaboration	Communication	Creativity	Critical thinking	Student Feedback	Employability	Technical skills
Collaboration							
Communication	0.776						
Creativity	0.793	0.768					
Critical thinking	0.731	0.678	0.630				
Student feedback	0.652	0.503	0.626	0.741			
Employability	0.782	0.756	0.539	0.838	0.787		
Technical skills	0.797	0.737	0.599	0.794	0.678	0.789	

Note. This table of Discriminant validity HTMT criterion was self-generated using Smart PLS 4 software to evaluate construct validity

5.3.3 Interpretation of Collinearity Statistics (VIF)

Table 8

Collinearity Statistics (VIF) outer Model

	VIF
Collaboration -> Meta-Skills	3.914
Communication -> Meta-Skills	4.215
Creativity -> Meta-Skills	4.07
Critical Thinking -> Meta-Skills	4.346
Meta Skills -> Employability	4.229
Student Feedback -> Employability	3.392
Technical Skills -> Employability	3.405

Note. This table of Collinearity Statistics (VIF) outer Model was self-generated using Smart PLS 4 software to measure multicollinearity

The Collinearity Statistics are measured using the Variance Inflation Factor (VIF) to evaluate whether predictor constructs in the outer and inner models revealed multicollinearity.

In PLS-SEM, VIF values below 5.0 are considered acceptable and accurate, which demonstrates that collinearity does not bias the path coefficient assessments (Hair, Hult, Ringle, & Sarstedt, 2021).

Outer Model (Second-Order Construct: Meta-Skills):

Collaboration (VIF = 3.914), Communication (VIF = 4.215), Creativity (VIF = 4.070), and Critical Thinking (VIF = 4.346) all result in VIF values less than the critical threshold of 5.

This shows that although the four criteria of Meta-skills (creativity, critical thinking, collaboration, and communication) are moderately correlated, they remained in the acceptable range. Thus, collinearity is not a threat or becomes problematic.

Table 9

Collinearity Statistics (VIF) outer Model

Statement	VIF
COLL1	2.952
COLL1	3.352
COLL2	3.019
COLL2	3.746
COLL3	2.312
COLL3	2.824
COLL4	2.295
COLL5	2.425
COLL5	2.204
COMM1	2.189
COMM1	2.651
COMM2	3.036
COMM2	2.482
COMM3	2.926
COMM3	2.719
COMM4	2.34
COMM4	2.622
COMM5	2.094
COMM5	2.135
COMM6	2.916
COMM6	2.55
COMM7	2.229
COMM7	2.457

COMM8	3.119
COMM8	2.861
CR1	3.227
CR1	2.908
CR2	3.017
CR2	3.342
CR3	2.618
CR3	2.871
CR4	2.574
CR4	2.281
CR5	2.312
CR5	2.811
CT1	2.43
CT1	2.095
CT2	2.728
CT2	2.319
CT3	2.591
CT3	2.145
CT4	2.347
CT4	2.024
CT5	2.568
CT5	2.008
EMP1	2.571
EMP2	2.557
EMP3	2.556
EMP4	2.454
EMP5	2.408
EMP6	2.402
SF1	2.246
SF2	3.102
SF3	2.884
SF4	2.542
TS1	2.745
TS2	3.158
TS3	2.317
TS4	2.746
TS5	2.768
TS6	2.679
TS7	2.554
TS8	2.416

Note. This table of Collinearity Statistics (VIF) outer Model was self-generated using Smart PLS 4 software for collinearity assessment

Inner Model (Predictors of Employability):

Meta-skills (VIF = 4.229), Student Feedback (VIF = 3.392), and Technical Skills (VIF = 3.405) all revealed adequate Variance Inflation Factor (VIF) values.

These findings point out that the determinants of Employability are theoretically related but statistically distinct, indicating that zero multicollinearity bias.

The moderately high VIF value for Meta-skills (4.229) shows a strong relationship with employability; nevertheless, it remains in the acceptable range, confirming that it does not compromise the reliability and accuracy of regression estimations.

In summary, all constructs are associated with recommended thresholds, and it is ensured that path coefficient estimation in the structural model is strong and unbiased by overlapping predictors.

5.3.4 Robustness Checks

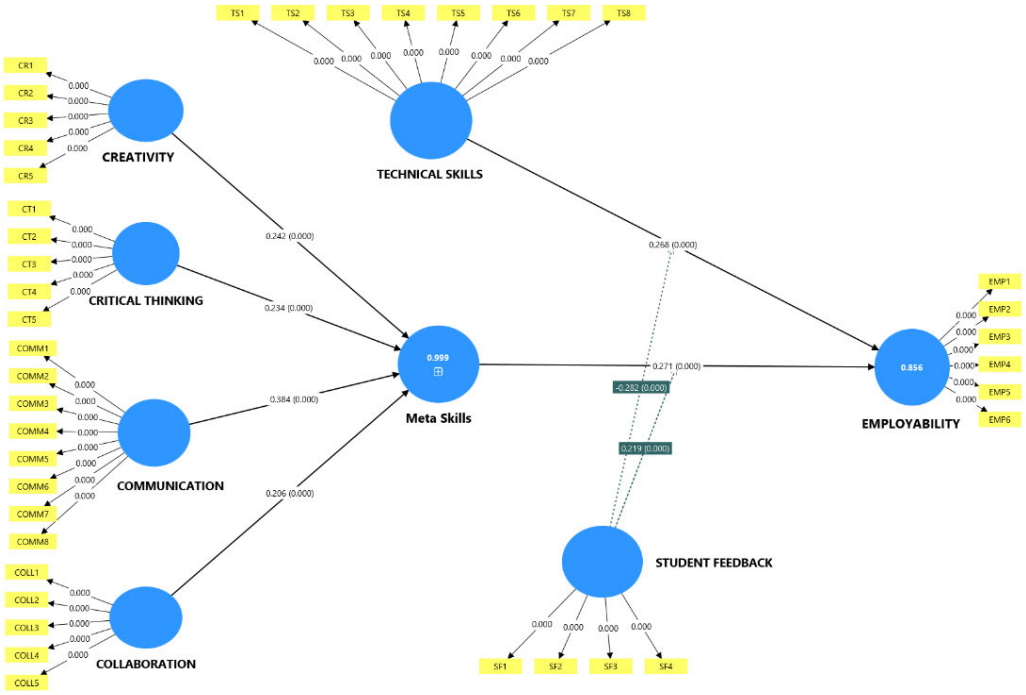
To mitigate the potential heterogeneity, we carried out supplementary robustness checks. First, we incorporated previous work experience and program of study as control factors in the structural model; nevertheless, the hypothesized relationship remained constant, with no substantial changes in the strength or direction of the study. Second, a multi-group analysis was implemented to evaluate and compare students who were currently employed and not employed. The path estimates between the two groups did not highlight significant changes, which shows that the model is reliable across employment status. Overall, these robustness checks demonstrate confidence that the results are not affected by sample heterogeneity and that the structural relationships are constant among different student profiles.

5.4 Structural Model results

The structural model was developed to analyse the hypothesized relationships between the variables. The analysis was handled in SmartPLS 4 using the bootstrapping technique with 5,000 resamples to analyse the significance of path coefficients.

Figure 3

Structural Model Results



Note. The structural model results were self-generated using Smart PLS 4 software to illustrate the relationships among variables and the moderator.

Higher-Order Construct: Meta-skills

A significant aspect of this study is the operationalization of Meta-skills as a second-order construct. Meta-skills covered four first-order reflective constructs, including 4C's, which represent the wider range of higher-order employability skills. Since both the second-order and first-order constructs were reflective, the repeated indicators method was applied for

better analysis (Becker, Klein, & Wetzels, 2012). This method is extensively suggested for reflective hierarchical component models as it enables the second-order construct to receive all measurement indicators from its dimensions, which safeguards the accurate estimation of the overall factor structure.

5.5 Path Coefficients and Hypothesis Testing

Table 10 below shows the path coefficients, standard errors, and significance levels for testing the hypothesized relationships. Path coefficients are acceptable at $\beta \geq 0.10$, and hypotheses are significant when $p < .05$ (Hair, Hult, Ringle, & Sarstedt, 2021).

Hypothesis 1 (H1) : Technical Skills → Employability

Technical Skills suggested a positive, constructive, and significant impact on Employability with $\beta = 0.268$, and $p < 0.001$. This result validates that technical skills enhanced by participating in CBPs play a vital role in emphasising international students' perceived employability outcomes.

Hypothesis 2 (H2) : Meta-skills → Employability

Meta-skills suggested a positive and significant impact on Employability with $\beta = 0.271$ and $p < 0.001$. These results highlight the significance of higher-order intellectual and interpersonal skills for international students' perceived employability outcomes. This validates the viewpoint that employers prioritize graduates who can integrate technical proficiencies with transferable meta-skills of collaboration, critical thinking, creativity, and communication skills.

Hypothesis 2a -2d (H2a–H2d) : First-Order Constructs → Meta-Skills

All four first-order constructs significantly contributed to the second-order Meta-skills construct, with the β and p values as follows,

- Creativity ($\beta = 0.242$, $p < 0.001$)

- Critical Thinking ($\beta = 0.234$, $p < 0.001$)
- Collaboration ($\beta = 0.206$, $p < 0.001$)
- Communication ($\beta = 0.384$, $p < 0.001$)

According to these test results, communication was reflected as the strongest contributor to meta-skills, followed by creativity, critical thinking, and finally, collaboration showed the minimum contribution to meta-skills. All these key findings recommend that the four meta-skills, communication skills, act as the most significant measurement, aligning with previous studies that mentioned communication as one of the top employability skills for students (Wu, Xu, & Philbin, 2023).

Table 10

Path coefficients and Hypothesis testing

Hypothesis	**Hypothesis relationship**	**Standard Beta**	**Sample mean (M)**	**Standard deviation (STDEV)**	**P values**	**Decision**
H1	Technical Skills -> Employability	0.268	0.273	0.057	0.000	Supported
H2	Meta-skills ->Employability	0.271	0.272	0.072	0.000	Supported
H2a	Creativity->Meta-skills	0.242	0.243	0.007	0.000	Supported
H2b	Critical thinking->Meta-skills	0.234	0.235	0.007	0.000	Supported
H2c	Collaboration->Meta-skills	0.206	0.207	0.007	0.000	Supported
H2d	Communication -> Meta-skills	0.384	0.383	0.009	0.000	Supported

Note. This table of Path coefficients and Hypothesis testing was self-generated using Smart PLS 4 software for hypothesis testing

Model Insights

In this study, both Technical Skills and Meta-skills are considered equally important and significant elements of Employability, with a similar range of path coefficients. This finding reveals that employability is a multi-dimensional force; students' job readiness for the labor market demand depends on domain-specific technical skills and adaptable soft skills.

The high-order level of Meta-skills also illustrates conceptual sophistication by indicating that the 4C's of meta-skills can be characterised as an integrated capability framework. All four meta-skills together contribute to the perceived employability outcomes of international students, revealing that employers do not require one skill set but also the integration of all technical and meta-skills to enable students to align with employers' expectations.

Coefficient of Determination (R^2)

R-squared demonstrates the coefficient determination from the proportion of variance explained by its independent variables, and adjusted R-squared corrects for the value for model complexity from the number of predictors and sample size, and it avoids overestimating the explanatory power (Hair, Hult, Ringle, & Sarstedt, 2021). This research model indicated a very strong explanatory power between the independent and dependent variables.

For Employability; $R^2 = 0.856$ and adjusted $R^2 = 0.855$. This indicates that 85.6% of the variance in the Employability is explained by the Technical Skills, Meta-skills, the moderator of Student Feedback, and their relation. According to Chin (1998), when R^2 values are 0.67 or above, they suggest high explanatory power, positioning this model as strong and reliable.

For meta-skills; $R^2 = 0.999$ and adjusted $R^2 = 0.999$. This shows that, due to the repetitive higher-order construct, all indicators of its sub-categories are obtained. Consequently, the R^2

of meta-skills is close to 1.0, suggesting that variance is totally explained by four lower-order constructs, 4C's, including Creativity, Critical Thinking, Communication, and Collaboration.

Table 11

R-squared and R-squared adjusted

	R-square	R-square adjusted
Employability	0.856	0.855
Meta-skills	0.999	0.999

Note. This table of R-squared and R-squared adjusted was self-generated using Smart PLS 4 software to measure the Coefficient of Determination

Effect Sizes (f^2)

Effect sizes provide insights into the individual contribution of predictor constructs to the endogenous variables (Cohen, 1988).

Table 12

F-square

	f-square
Meta-skills -> Employability	0.098
Student Feedback -> Employability	0.248
Student Feedback X Meta-skills -> Employability	0.171
Student Feedback X Technical Skills -> Employability	0.252
Technical Skills -> Employability	0.147

Note. This table of F-squared was self-generated using Smart PLS 4 software to measure the individual contribution of each predictor to the R^2

Effect sizes (f^2) were measured through Cohen's (1988) standards; the values of 0.02, 0.15, and 0.35 denote small, medium, and large effects, respectively. Technical Skills ($f^2 = 0.147$)

have a medium effect on employability, while Meta-skills ($f^2 = 0.098$) explain a small-to-medium effect. Student Feedback reveals a medium-to-large direct effect ($f^2 = 0.248$) and strengthens perceived employability outcomes over the moderation effect, while Student Feedback × Meta-skills ($f^2 = 0.171$) gives a medium effect, and Student Feedback × Technical Skills ($f^2 = 0.252$) gives a medium-to-large effect. These research findings highlight feedback's significant role as a contextual driver that increases the transformation of skills into employability (Kolb, 2015).

Predictive Relevance (Q^2predict)

The predictive validity of the study was evaluated using the PLSpredict procedure (Shmueli et al., 2019). Q^2predict values higher than 0.00 suggested predictive relevance, with values of 0.02, 0.15, and 0.35 demonstrating small, medium, and large predictive relevance, respectively (Hair, Hult, Ringle, & Sarstedt, 2021).

For Employability, the model achieved a Q^2 predict value of 0.851, which is greater than the 0.35 standard, and therefore it exhibits substantial predictive relevance. Prediction errors were low (RMSE = 0.393; MAE = 0.277), indicating that the model predicts employability outcomes with high accuracy and reliability. For Meta-skills, Q^2predict value of 0.999, with very low prediction errors (RMSE = 0.032; MAE = 0.023). This ideal value exhibits the hierarchical modelling approach, where the second-order construct receives all indicators from its first-order dimensions, resulting in complete variance explanation.

In summary, these research findings reinforce that the model is not only explanatory (as proven by high R^2 values) but also predictive, suggesting substantial practical effectiveness. Notably, the strong predictive relevance for Employability shows that the model can be confidently used by instructors and policymakers to predict international students' employability readiness when participating in CBPs.

Table 13

Predictive Relevance

	Q^2predict	**RMSE**	**MAE**
EMPLOYABILITY	0.851	0.393	0.277
Meta-skills	0.999	0.032	0.023

Note. This table of predictive relevance was self-generated using Smart PLS 4 software to measure accuracy and relevance

Analysis of the Moderating effect of Student feedback

Regardless of its direct effect on Employability, the research observed the moderating effect of Student Feedback in the relationship between employability skills (Technical and Meta-skills) and Employability. Moderation assessment was conducted through interaction terms in SmartPLS, with significance tested through bootstrapping (5,000 resamples).

Table 14

Path Coefficients and Hypothesis Testing

Hypothesis	**Hypothesis relationship**	**Standard Beta**	**Sample mean (M)**	**Standard deviation (STDEV)**	**P values**	**Decision**
H3a	Student Feedback X Technical Skills -> Employability	-0.282	-0.272	0.054	0.000	Supported
H3b	Student Feedback X Meta-skills -> Employability	0.219	0.21	0.047	0.000	Supported

Note. This table of Path Coefficients and Hypothesis Testing was self-generated using Smart PLS 4 software to test the hypothesis of moderation effects

Technical Skills × Student Feedback → Employability

The findings indicate a negative and significant moderating influence of Student Feedback on the connection between Technical Skills and Employability ($\beta = –0.282$, $p < 0.001$). This

finding indicates that when student feedback was low, technical skills strongly predicted employability. Also, when student feedback was strong, employability depended less on technical skills and more on a combination of both skills.

Meta-skills × Student Feedback → Employability

Similarly, Student Feedback positively moderates the relationship between Meta-skills and Employability ($\beta = 0.219$, $p < 0.001$). This suggests that when student feedback was low, meta-skills had a small impact on employability. This relationship reveals that student feedback unlocks the employability potential of meta-skills of international students through communication, creativity, collaboration, and critical thinking. Altogether, with a high level of student feedback, meta-skills become a valuable employability advantage to the international students.

Overall, the moderation analysis offers important understandings into how student feedback defines the employability outcomes of international students. The results indicate a dual role of feedback.

- It reduces dependence on technical skills alone, demonstrating that employability in the current job market cannot be accomplished by only developing technical skills.
- It magnifies the effect of meta-skills, showing that student feedback enables them to interpret their creativity, communication, collaboration, and critical thinking into solid career readiness.

Student feedback creates employability skills that are more credible and helps them to articulate and demonstrate these skills to potential employers.

Slope Analysis of Moderating Effects

To visually interpret the moderating effect of Student Feedback, a simple slope study was carried out by plotting the interaction influences at three different levels of the moderator:

- Low feedback (–1 SD)
- Mean feedback
- High feedback (+1 SD)

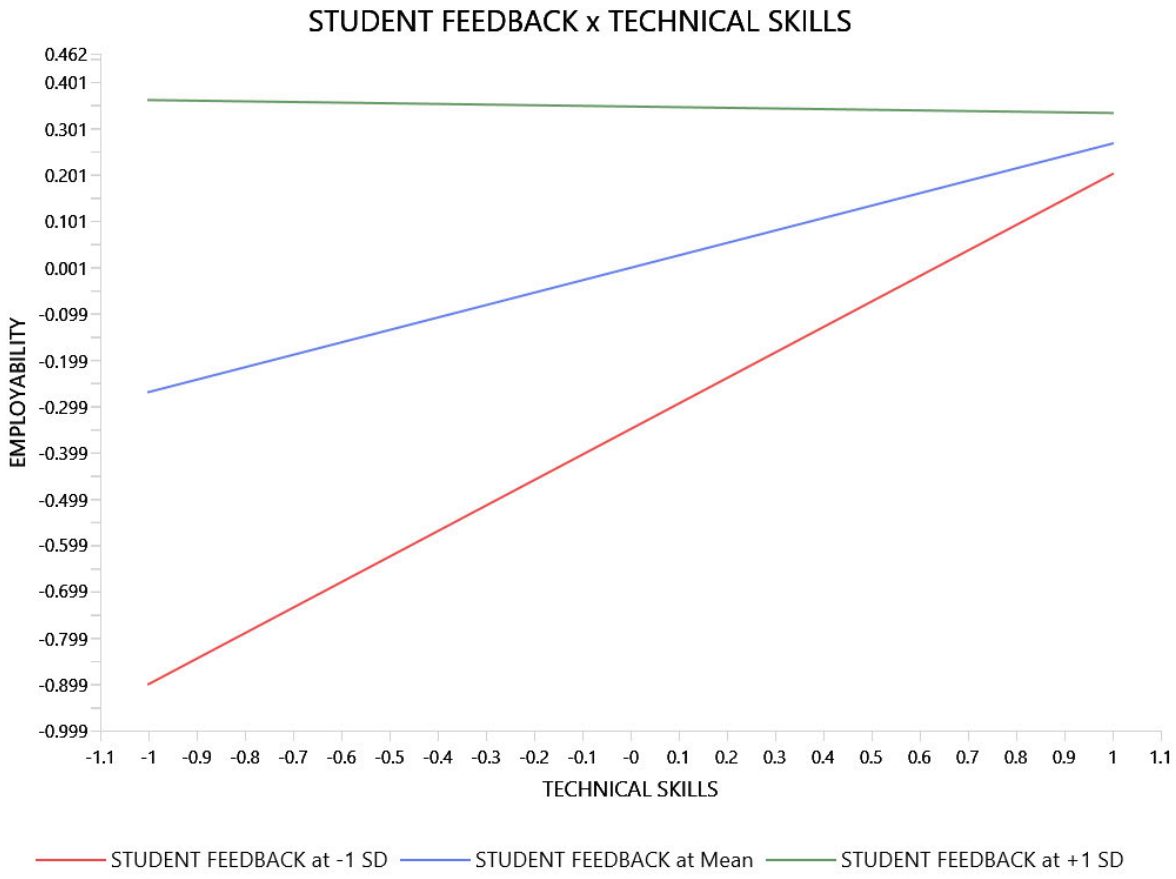
Student Feedback × Technical Skills → Employability

For Technical Skills, student feedback highly reduced the strength of the relationship with employability by indicating $\beta = -0.282$ and $p < 0.001$. Figure 4 illustrates that technical skills strongly predicted employability when feedback was less; nevertheless, when feedback increased, the slope flattened. When students reflect low levels of feedback (–1 SD), the slope increases strongly and positively, which indicates that technical skills deliberately enhance employability when student feedback is less.

These findings validate the hypothesis and indicate that student feedback reduces the excessive reliance on technical skills and prioritizes both technical and meta-skills for students' career development.

Figure 4

Moderation analysis plot- Technical Skills



Note. This graph is self-generated using Smart PLS 4 software to illustrate students' feedback's moderative effect on technical skills and employability.

Student Feedback × Meta-skills → Employability

Figure 5 shows the moderating impact of Student Feedback on the relationship between Meta-skills and Employability with ($\beta = 0.219$, $p < 0.001$). The slope clearly describes that:

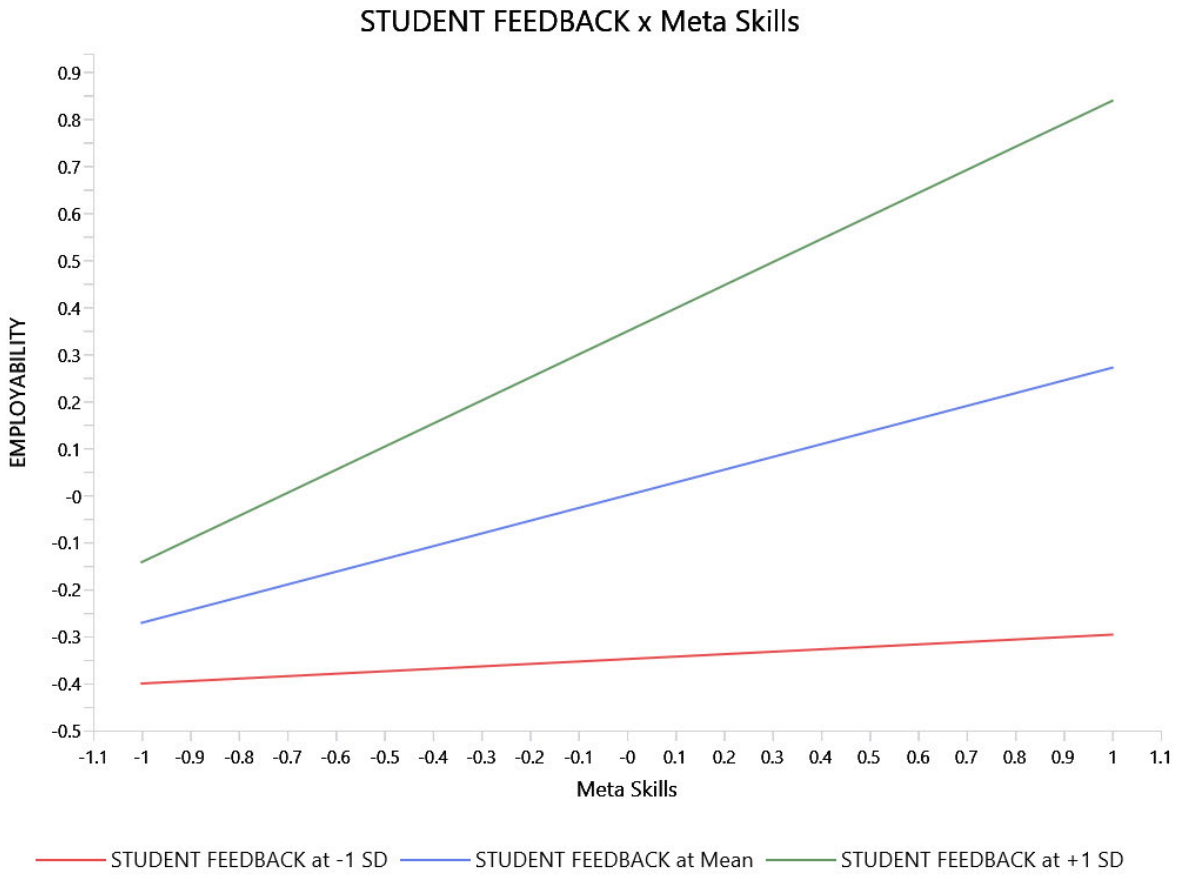
- When student feedback is low (–1 SD), the slope is flat, demonstrating a weak association and relationship between meta-skills and employability.

- When student feedback is at the mean level, the slope is positive, indicating that meta-skills contribute positively to the employability.
- When student feedback is high (+1 SD), the slope increases strongly, indicating a strong positive relationship between meta-skills and employability.

These findings validate the hypothesis and indicate that student feedback strengthens the meta-skills while influencing employability. Similarly, meta-skills only become a real employability benefit when students are facilitated in refining and demonstrating them.

Figure 5

Moderation analysis plot- Meta-skills



Note. This graph is self-generated using Smart PLS 4 software to illustrate students' feedback's moderative effect on meta-skills and employability.

Finally, these findings emphasize that feedback redefines the significance of technical and meta-skills in employability outcomes. Technical skills remain significant but are less influential when feedback is high, while meta-skills become critical in influencing employability. This is associated with experiential learning theory (Kolb, 2015), as it highlights that skills transform into meaningful outcomes when students regularly reflect on feedback. In post-secondary education, student feedback not only improves academic performance but also transfers technical and meta-skills into tangible career advantages.

Chapter 6: Discussion and Theoretical and Practical Contributions of the Study

This chapter outlines the findings of the study by connecting the systematic results with research objectives and previous literature. The chapter begins with the interpretation of results on how the hypothesis was tested and the relationship among variables and the moderator. Since this research employs a cross-sectional design and depends on self-assessed data, the outcomes of this study reflect correlational patterns, not definitive causal effects.

Secondly, it discussed the practical contribution of the studies discussed, the benefits to students, educators, and employers, and the employability outcomes of engaging with CBPs. Finally, the chapter concludes with a theoretical implication by discussing how this study supports the theory by making a clear, broader, and detailed framework about technical and meta-skills and how students' feedback influences the employability of international students.

6.1 Discussion of the results

The statistical outcomes of the Partial Least Squares Structural Equation Modeling (PLS SEM) deliver a clear indication that participating in CBPs is linked to significant enhancements in technical and meta-skills, which influence the perceived employability of international students. From this model, we have identified that technical and meta-skills appear as strong positive predictors of employability, which strengthens the main hypothesis. The statistical measure of path coefficient proves that both technical skills to employability ($\beta \approx 0.27$, $p < 0.001$) and meta-skills to employability ($\beta \approx 0.27$, $p < 0.001$) independently contribute to higher employability. As such, students who have high technical skills such as computer literacy, industry-specific knowledge, hardware handling, and transferable meta-skills have high confidence, are well prepared, and are employable. The previous studies by Hossain et al. (2020) stated that technical skills and soft skills have a constructive influence

on graduates' employability, and emphasised that having a balance of these essential skills is a crucial factor for sustaining a career.

More importantly, the data analysis validated Meta-skills as a second-order construct, encompassing the 4Cs of creativity, critical thinking, communication, and collaboration. All sub-skills contributed substantially to the second-order construct, and communication demonstrated the highest relative influence. This recommends that the development of one soft skill can influence the other related soft skills through practical learning from CBPs. This aligns with the previous studies by Tofighi (2022), stating that marketing students involved in CBPs exhibited advancements in analytical thinking, creativity, and accountability that are hard to accomplish from in-class learning.

Furthermore, through this analysis, we have proved that student feedback significantly moderates the technical and meta-skills on the employability of international students. For the meta-skills interaction term, the coefficient indicates $\beta \approx +0.22$, $p < 0.001$, supported by the fact that when students provide high-quality feedback on skills learn through CBPs, their impact on employability becomes stronger. For instance, student feedback plays a vital role as a moderator, since it indicates the self-evaluation of how CBPs build technical and meta-skills and their impact on employability. The positive feedback reveals the success of the client-based learning, and it helps educators and policymakers to further improve strategies to boost the employability of international students.

The overall model fit shows $R^2 \approx 0.856$ for employability, which was very high, demonstrating that the combination of technical and meta-skills, and student feedback, describes a large proportion of why students perceive themselves as employable after completing a CBP. This strong explanatory power, even though partly attributable to the common-method self-reporting, determines that our model successfully captured the

significant components of employability enhancement within the given data set. Moreover, the target population is considered as international students in Canada, who usually face difficulties being employable due to a lack of Canadian experience and exposure. Both technical and meta-skills are equally essential for international students to build additional skills to overcome these barriers effectively. CBPs, as an experimental learning platform, can foster employability skills as an encouraging indicator. In conclusion, the research findings and existing literature offer practical evidence to validate the hypothesis, and they pave the way for further investigation and practical applications in the educational and professional settings.

6.2 Practical Contributions of the Study

This research gives some practical contributions to learners, educators, policy-makers, employers, and society. Firstly, to strengthen the curriculum design. The research findings reveal that technical and meta-skills significantly influence the employability of international students. That creates a strong message to post-secondary institutions and curriculum designers to restructure the programs to obtain a balanced skill set. The traditional in-class learning is not sufficient to deliver practical knowledge; therefore, including CBP learning in the curriculum would actively develop soft skills and students can obtain practical experience when working with real-world clients. These active learning methods support students in linking the theoretical learning to the practical settings. The previous literature emphasizes that participating in live CBPs can boost the employability of students (Tofighi, 2022), and our empirical results provide a solid foundation for scaling up initiatives. For instance, educational institutions can partner with platforms like Riipen to develop capstone projects, hence students can train in professional settings while developing technical and meta-skills.

Secondly, this study will benefit career services and student preparation. Career services can utilize the research findings to initiate career development programs, such as workshops or

coaching sessions that are specially targeted to enhance soft skills. Moreover, career services can motivate students to highlight the CBPs' learnings and practical experiences on their resume and encourage them to express the real-world skills during the interviews. Students should be clearly guided to communicate the technical skills they obtained and the soft skills they exhibited during a CBP to transfer these skills and project experience into employability skills that appeal to potential employers.

Thirdly, employers and corporate partners benefited from this study. Employers and corporate partners who are committed to the educational institutions can recommend more employers to participate in CBPs. For instance, encourage them to offer projects, provide internships and mentorship opportunities, and provide constructive feedback that aligns with the market standards. Usually, employers benefit from allowing students to participate in their organizational concerns, since they can get early access to the talent and innovative ideas observed by the students. Consequently, a CBP strengthens the talent pipeline objectives and contributes to corporate social responsibility. The research findings show that employer contributions to these projects are critical, since students can be prepared and equipped with diverse skills that employers are expecting. Nevertheless, employers generally regret that graduate students lack soft skills, which they cannot transfer into the workplace setting. The research finding demonstrates that employers can prepare students to become well-rounded future professionals by providing constructive feedback from CBPs.

Apart from the student feedback, the structured feedback from the educators or the clients is essential in improving the employability outcomes of the student. The previous studies reveal that CBPs, along with constructive feedback, build a strong reliability and confidence in the proficiencies and improve project deliverables (Childers et al., 2020). When educators and clients deliver structured feedback during the project period, students receive better acknowledgement of their competencies and alignment with the organization's standards

(Ramukumba, 2021). Moreover, learning through CBPs with constructive feedback from clients and instructors strengthens students' professional skills and promotes self-efficacy while applying academic knowledge in practical settings (Kricsfalusy, George, & Reed, 2018). Altogether, these perspectives highlight that structured feedback practices from clients and instructors during CBPs can improve employability outcomes other than the students' self-reflective feedback.

6.3 Theoretical contributions of the study

This research contributes to some important theoretical aspects. Firstly, it developed a research model that statistically confirmed and connected the role of technical and meta-skills to graduate employability for international students. Though previous studies validated that both technical and soft skills impact career readiness, studies usually treat these two factors separately or in different frameworks. Our study linked both skills into one framework, mentioning that both skills have an exceptional impact on the perceived employability of the graduate students. This framework strengthens the human capital theory (Tett, 2024) and the employability frameworks by emphasizing multidimensional aspects of human capital and technical and soft skills, which make graduate students more adaptable and effective in the work environment. Moreover, our research findings comply with the recent graduate employability studies (Hossain et al., 2020; Mwita et al., 2024) as well.

Secondly, our literature review indicates that both technical and meta-skills simultaneously impact the employability; no single dimension can be used to underscore the influence. Moreover, our research findings validate the second-order Meta-Skills (creativity, critical thinking, collaboration, and communication). This is derived from the concept of the 4Cs of the 21st-century skills framework. Additionally, future hypothesizing on graduate employability can integrate a hierarchical perspective of meta-skills by understanding that

interventions targeting one meta-skill can affect other skills due to the interconnectivity of variables.

Thirdly, our study focused on client-based learning and experimental learning literature, by emphasising the role of feedback for employability outcomes. According to Kolb's (1984) experimental learning theory and associated models, which highlight that feedback and interpretation are critical aspects of learning, a few quantitative studies have also analyzed the role of feedback in influencing the employability outcomes

Lastly, this study focuses on international students in Canada. There are no previous studies addressing this population in employability studies. Theoretical frameworks for graduate employability have been broadly studied, targeting domestic students or specific fields. Relatively less attention and consideration have been paid to international students in Canada who face cultural barriers, language barriers, and a lack of Canadian work experience. Our research findings reveal that technical and soft skills, as established constructs, function similarly for international students, both serving as significant predictors of employability, thereby enhancing the validity of existing theories to this distinct population.

Chapter 7: Conclusion, Limitation, and Future Scope of the Study

The last chapter outlines the conclusion with limitations and suggestions. The limitations discuss the boundaries of the study, and they have a direct influence on the results and interpretation of the outcomes. Finally, the chapter identifies areas for improvement for future studies by delivering directions to expand and refine the understanding generated by findings.

7.1 Conclusion

The purpose of this research is to explore the impact of CBPs on the employability of international students in Canada. The study focuses on the advancement of technical and meta-skills and the moderation factor of student feedback. The research findings reveal that CBPs are an influential academic approach that enhances the employability of international students. Through a large sample survey to collect data and structural equation modelling to statistical analytics, we identified that international students who participated in client-based experimental projects obtain significant technical and meta-skills which contribute to the perceived employability of the international graduates. Furthermore, the research identifies that technical and meta-skills have equally significant impacts through the study. In our research model, technical skills like industry-specific skills and hardware handling, and meta-skills such as creativity, critical thinking, collaboration, and communication skills, each made a unique contribution to enhance the employability. These findings align with the key conclusion that employability is maximized when students are equipped to have both soft skills and transferable skills needed to adapt to new situations and work environments successfully, and technical skills are required to perform the job well. Due to methodological constraints, mainly based on cross-sectional, self-reported data, the observed relationship demonstrated association rather than causation.

Moreover, our research provides new insight into the role of student feedback in experimental learning. We found that student feedback moderates the relationship between technical and meta-skills and employability, and we proved it statistically. Nevertheless, the positive student feedback reveals how strongly participating in CBPs strengthens their employability, and it will provide guidelines to educators and policymakers to make adjustments based on the students' perceptions to achieve the maximum outcome. Therefore, student feedback acts as guidelines that help them to reflect on the employability outcomes, performance, and skills, and provide better alignment with their learning and employer expectations.

Lastly, this study is beneficial to the higher educational sector to enhance graduate employability, especially international students in Canada who often face different barriers in the job market. Through the empirical observations of the study, we identified that participating in CBPs not only addresses the gap between traditional in-class learning and employability requirements but also highlights the factors that make students employable. Through these projects, international students in Canada can obtain domestic work experience, exposure to Canadian work culture, prove their abilities to potential employers, build confidence, and eventually become highly employable. We encourage universities, post-secondary institutions, and policymakers to expand such opportunities to international students in Canada to get real-time work experience. Implementing these projects, the gap between traditional in-class learning and employment can be narrowed, and it benefits students, employers, and society.

To implement these actionable steps, we recommend two program-level actions as a final step. The first program-level action is to require each student to complete a minimum of one CBP assessed using a transparent meta-skills framework and technical skills, which are outlined in the syllabus and integrated into grading alongside technical outcomes. Second program-level action is to integrate two feedback checkpoints during the mid-project stage

and end project stage, which gives students clear and brief written feedback guidance with 2 or 3 actionable steps based on rubric standards for future improvement, and allows instructors to assess how client-based projects impact the skill enhancement. These actionable steps are in line with our research findings, where the student feedback is connected to a stronger conversion of meta-skills and technical skills into perceived employability of the students. Based on that, these actionable steps are both skills and a feedback approach. make visible to potential employers while ensuring that the research findings are framed in line with the study's cross-sectional and self-report design. Incorporating this process into Canadian post-secondary educational programs would benefit students by reducing first-job friction and minimizing the gap between academic studies and industry requirements.

7.2 Limitations

There are certain limitations that were identified in this study. Firstly, this study heavily relies on cross-sectional self-report data, which only address the skills and employability perspectives, without considering the causation. Also, measurements were taken to minimize the bias, but the possibility of inflated relationships remains. Longitudinal or multi-source data, such as employer evaluations, can improve causal implications.

Secondly, the generalizability of sample distribution is limited, which means that the participants were selected mainly through business-related programs (master's and bachelor's students), and the sample is not diversified with other subject areas such as art and STEM. In the Canadian context, experimental learning and English communication are common; therefore, the study cannot be applied to other countries due to differences in the educational system, labour market, and language preferences.

Third, the study measured perceived employability other than career readiness. This highlights the student's confidence to become employable, but career confidence does not

always turn into job accomplishment. The student feedback measurement cannot always BE true since students with high confidence did not consider the market barriers or challenges. To measure the perceived employability effectively, future research should connect students to actual employment outcomes and adopt multidimensional models of employability, such as self-efficacy and social capital.

The fourth limitation is that self-reflection on employability skills and student feedback have high potential for response and recall bias. For instance, if the student has a negative experience with a CBP, responses become uniform and inaccurate. To enhance the rigor, future studies should collect the data from the project deliverables, such as the actual quality of the CBP completion, and use independent tests to measure the employability skills.

Finally, the study considered the CBPs in general without reflecting on project scope, duration, and client engagement. Since the CBPs are not unique, these variations can influence the outcomes. Therefore, future research should capture some information, such as project level and scope, to develop an accurate outcome.

7.3 Future Scope of the Study

Grounded on research outcomes and limitations, some scopes were identified for future implications.

Longitudinal and Causal Studies. Instead of analyzing the relationship between skills and employability, Longitudinal and Causal Studies can be utilized to evaluate causes and improvements in skills and employability outcomes. To measure the skill development through the CBPs, outcomes can be measured at the beginning and the end of the project for better interpretation of the results. Also, use the Quasi-experimental approaches such as

comparing the student skills with and without client projects, hence researchers can measure the real impact of the client project.

Utilize Diverse Contexts and Populations. To safeguard the accuracy and reliability of the data, it is important to include participants from different countries and backgrounds to test generalizability. Use comparative studies to analyse the differences between the domestic and international students. Use Cross-disciplinary exploration to analyze the CBP impact through diverse fields such as STEM and health science.

Granular Analysis of Meta-Skills. As our conceptualization of Meta-Skills is a second-order, we need to measure the impact of each skill. The future research should focus on evaluating meta-skills based on different sectors, so that researchers can analyze which meta-skill is more related to a specific field. Combining employer interviews with student data helps to identify whether the client projects are providing the soft skills employers really want.

Mechanisms of Feedback. The student feedback as a moderator required deep exploration. Qualitative studies using structured interviews and focus groups can further examine how feedback strengthens or weakens the relationships. Moreover, the discrepancies between feedback types, sources, and timing may impact student feedback in different ways.

Career Outcomes and Employer Perspectives. Future studies should connect students' perception with potential career outcomes, such as how promptly students get better jobs after completing CBPs using longitudinal follow-up, and compare the results with students who don't participate in the client project. arranging surveys or interviews with employers to observe feedback and analyze the employer's perspective on the employability of the student

who participated in the client-based projects, and analyze the factors that impact employability and influence hiring.

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Appendixes

Appendix – 01 Survey Statements for Exploring the impact of Client-Based projects on the Employability of International students

Technical Skills

Statements	Likert Scale (1-7)	Reference
The client-based projects that were part of the courses I did were structured in a way that increased my technical skills.	Strongly Disagree (1) to Strongly Agree (7)	Ali, 2017
The client-based projects helped me to gain subject-specific knowledge.	Strongly Disagree (1) to Strongly Agree (7)	Mwita et al., 2024
I gained the ability to finish work assignments with accuracy and within a timeframe.	Strongly Disagree (1) to Strongly Agree (7)	Mwita et al., 2024
Through client-based projects, I am effective in using IT-related technologies in work or project environments.	Strongly Disagree (1) to Strongly Agree (7)	Mwita et al., 2024
Through client-based projects, I can adapt quickly to new situations or changes in project or work settings.	Strongly Disagree (1) to Strongly Agree (7)	Etomes, 2021

Through client-based projects, I can manage and process large amounts of new information when completing tasks.	Strongly Disagree (1) to Strongly Agree (7)	Etomes, 2021
I can apply the knowledge I've gained in practical, real-world situations.	Strongly Disagree (1) to Strongly Agree (7)	Etomes, 2021
Through client-based projects, I can effectively find, and access new information needed to complete tasks or solve problems.	Strongly Disagree (1) to Strongly Agree (7)	Etomes, 2021

Creativity

Statements	Likert Scale (1-7)	Reference
Through client-based projects, I often propose effective solutions when facing problems	Strongly Disagree (1) to Strongly Agree (7)	Tsai et al., 2024
Through client-based projects, I often come up with innovative and practical ideas during projects or tasks	Strongly Disagree (1) to Strongly Agree (7)	Tsai et al., 2024
Through client-based projects, I am often seen as a key source of creative ideas in group activities	Strongly Disagree (1) to Strongly Agree (7)	Tsai et al., 2024

Through client-based projects, I usually take the opportunity to showcase creativity in learning activities	Strongly Disagree (1) to Strongly Agree (7)	Tsai et al., 2024
The client-based projects helped me to gain analysis and problem-solving abilities	Strongly Disagree (1) to Strongly Agree (7)	Etomes, 2021

Critical Thinking

Statements	Likert Scale (1-7)	Reference
Through client-based projects, I have developed my critical thinking skills in making reasoned judgments from opposing perspectives	Strongly Disagree (1) to Strongly Agree (7)	Tsai et al., 2024
Through client-based projects, I am more willing to consider another point of view to evaluate how strong or valid it is.	Strongly Disagree (1) to Strongly Agree (7)	Tsai et al., 2024
By doing client-based projects, when I face a difficult problem, I can usually find a new way of solving it.	Strongly Disagree (1) to Strongly Agree (7)	Tsai et al., 2024
The client-based project encourage me to examine	Strongly Disagree (1) to Strongly Agree (7)	Tsai et al., 2024

questions or problems differently		
Through client-based projects, I am more willing to change and accept new ideas in learning or work settings	Strongly Disagree (1) to Strongly Agree (7)	Tsai et al., 2024

Communication

Statements	Likert Scale (1-7)	Reference
Client-based projects offered me the opportunity to develop and apply my communication skills (written, oral, and visual)	Strongly Disagree (1) to Strongly Agree (7)	Kricsfalusy et al., 2018
The client-based project improves my ability to communicate my ideas in a real-world context	Strongly Disagree (1) to Strongly Agree (7)	Kricsfalusy et al., 2018
The client-based project has helped in developing my skills in effectively communicating with others	Strongly Disagree (1) to Strongly Agree (7)	Tsai et al., 2024
My oral presentation skills have improved after the client-based project	Strongly Disagree (1) to Strongly Agree (7)	Tsai et al., 2024

Through client-based projects, I learned that inadequate oral communication skills can prevent me from clearly expressing my ideas	Strongly Disagree (1) to Strongly Agree (7)	Wu et al., 2023
Through client-based projects, I learned that writing communication skills are important in study or work.	Strongly Disagree (1) to Strongly Agree (7)	Wu et al., 2023
Through client-based projects, I learned to use use digital media (WeChat, email, etc.) to express my views and ideas accurately	Strongly Disagree (1) to Strongly Agree (7)	Wu et al., 2023
The client-based project helps me to demonstrate effective project management skills and communication	Strongly Disagree (1) to Strongly Agree (7)	Rohm et al., 2021

Collaboration

Statements	Likert Scale (1-7)	Reference
The client-based project encouraged and supported me to develop interpersonal (teamwork) skills	Strongly Disagree (1) to Strongly Agree (7)	Kricsfalusy et al., 2018

I learned to be an effective member of teamwork through this client-based project	Strongly Disagree (1) to Strongly Agree (7)	Tsai et al., 2024
Through client-based projects, I am confident in my ability to interact with a wide range of people	Strongly Disagree (1) to Strongly Agree (7)	Tsai et al., 2024
The client-based project helped me develop my teamwork skills	Strongly Disagree (1) to Strongly Agree (7)	Parsons & Lepkowska-White, 2009
The client-based project helped me develop my interpersonal skills	Strongly Disagree (1) to Strongly Agree (7)	Parsons & Lepkowska-White, 2009
I gained the ability to work in multidisciplinary teams on fast-paced and complex real-world projects	Strongly Disagree (1) to Strongly Agree (7)	Rohm et al., 2021

Student Feedback

Statements	Likert Scale (1-7)	Reference
Through client-based projects, the skills and abilities that I possess are what employers are looking for.	Strongly Disagree (1) to Strongly Agree (7)	Mwita et al., 2024

By doing client-based projects, I am generally confident of success in job Interviews and selection events	Strongly Disagree (1) to Strongly Agree (7)	Mwita et al., 2024
After doing client-based projects, I feel I could get any job so long as my skills and experience are reasonably relevant	Strongly Disagree (1) to Strongly Agree (7)	Mwita et al., 2024
After doing client-based projects, I can easily find out about opportunities in my chosen field	Strongly Disagree (1) to Strongly Agree (7)	Mwita et al., 2024

Employability

Statements	Likert Scale (1-7)	Reference
Skills learned from client-based projects translate into the workplace, creating employees who can collaborate, share skills and knowledge, and communicate their ideas effectively	Strongly Disagree (1) to Strongly Agree (7)	Gaumer, Cotleur, & Arnone, 2012
International students participating in client-based	Strongly Disagree (1) to Strongly Agree (7)	Mwita et al., 2024

projects with better soft and technical skills have a higher chance of getting employed		
Students involved in client-based projects possessing soft skills are considered to be confident, able to effectively communicate with an ability to solve work-related and non-work-related problems	Strongly Disagree (1) to Strongly Agree (7)	Mwita et al., 2024
International students who participated in client-based projects believe that they obtained higher academic confidence, career confidence, hard skills, and soft skills	Strongly Disagree (1) to Strongly Agree (7)	Tofighi, 2022
Working with real clients helps students learn problem-solving skills and manage the ambiguity	Strongly Disagree (1) to Strongly Agree (7)	McCale, 2008
Client projects serve as an important first step for learning and particularly for becoming part of a community of practice by recognizing an organization's values and goals	Strongly Disagree (1) to Strongly Agree (7)	Kramer-Simpson, Newmark, & Dyke Ford, 2015