Master's Thesis: Examining the Effectiveness of a Training Program on Emotional Intelligence and Career Readiness of Post-Secondary Students

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We acknowledge and respect the Lək^{w}əŋən (Songhees and X^{w}sepsəm/ Esquimalt) Peoples on whose territory the university stands, and the Lək^{w}əŋən and W̱SÁNEĆ Peoples whose historical relationships with the land continue to this day.

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Abstract

In today's rapidly evolving, technology-driven workforce, the influence of artificial intelligence (AI) has heightened the need for emotional intelligence (EI) and 21st century skills among university graduates. Research links EI to career-related outcomes such as job performance and leadership, while employers expect universities to develop career-ready graduates. Research indicates that EI training programs can effectively increase these essential skills through targeted interventions and experiential learning in post-secondary education.

This study evaluates a training program designed to increase EI and career readiness competencies for a sample of 121 undergraduate students at a Canadian university during the COVID-19 pandemic. Using secondary data from self-reported measures of EI and career readiness and a pre-post survey design, the quasi-experimental study examines the effects of the training for increasing total EI, its 10 sub-facets, and eight career readiness competencies. Findings supported the effectiveness of an EI training program in significantly improving total EI and select sub-facets of EI, and partial effectiveness in increasing career readiness competencies.

To strengthen arguments supporting causation, future research should employ an experimental research design as the absence of a formal control group in this study limited statistical analyses. Further exploration should identify training components most effective at enhancing EI and its sub-facets. Longitudinal studies with repeated measures could investigate predictive relationships and potential mediating factors between EI and career readiness. The findings also suggest a link between EI-focused training programs and career outcomes. Further investigation into this association could inform program design to better equip university students with essential 21st century skills for their future careers.

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Finally, and most importantly, I want to extend heartfelt gratitude to my family. To my parents, who instilled in me the values of perseverance, lifelong learning, and striving for excellence. To my husband Ryan, and children Mathéo and Thomas, whose love, patience, and steadfast support were my anchor through this journey.

Dedication

To Mathéo and Thomas, who are my greatest teachers.

May you grow with open hearts and always have the courage to be kind; may you lean into your feelings as companions and others' feelings as guides, and may you always lead with your humanity.

I am endlessly proud of who you are and who are you becoming.

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Chapter 1: Introduction

In a post-pandemic era, the world of work has undergone transformational change, characterized by the rapid integration of digital technologies, the widespread transition to remote work, and the accelerated prominence of artificial intelligence (AI). These technological shifts have intensified the demand for workers who possess a unique blend of technical and human-centered skills. Emotional Intelligence (EI) has emerged as a critical set of skills for navigating the complex interpersonal and organizational dynamics of modern workplaces (World Economic Forum, 2020). However, evidence suggests that post-secondary students have limited development of EI and associated career readiness competencies, including teamwork, critical-thinking, problem-solving, and career management (NACE, 2022). This misalignment between workplace needs and current educational outcomes highlight the need for rigorous, empirically tested training programs that embed EI development within post-secondary curricula.

One promising approach for fostering EI is through social-emotional learning (SEL) programs, which have demonstrated efficacy in enhancing individuals' emotional competencies across diverse educational settings (Brackett & Rivers 2014; Brackett et al., 2019; Durlak et al., 2011). While a substantial body of research has established the positive effects of SEL programs in early education (K-12), empirical studies investigating the implementation and outcomes of SEL interventions in post-secondary populations remain comparatively limited. Furthermore, few studies have examined the efficacy of SEL-based interventions specifically targeting EI development among university students, particularly in relation to career-related outcomes. This gap highlights a pressing need for research that examines the efficacy of targeted EI interventions for improving students' motional and social competencies, the associated impacts

on career-related variables, and the key determinants contributing to effective EI training interventions in post-secondary educational settings.

The view that EI is developmental in nature is supported by foundational theories (Goleman, 1998; Mayer et al., 2004, 2008) and empirical studies (Hodzic et al., 2018; Nelis et al., 2009, 2011). Together, these sources suggest that evidence-based interventions hold significant promise for fostering individuals' ability to *perceive, understand, and manage* emotions more effectively. Although an emerging body of literature suggests positive associations between EI and career-related outcomes (e.g., career decision self-efficacy, job performance, and employability; Di Fabio & Saklofske, 2014; Miao et al., 2017; O'Boyle et al., 2011), few studies have systematically evaluated the impact of EI training programs on both EI and career readiness skills among students in the Canadian post-secondary context. The present study seeks to address these gaps by examining the outcomes of an EI training program designed to enhance both EI and career readiness competencies for a sample of undergraduate students at a Canadian university. In doing so, this research aims to contribute to the emerging body of empirical evidence on the efficacy of EI-focused interventions in higher education and the potential impacts for preparing career-ready graduates for the evolving world of work.

Chapter 2: Literature Review

In the following literature review, the construct of EI will be discussed, including early conceptualizations, theoretical models, measurements, and the foundational role of SEL in the EI literature. The outcomes of EI discussed will include academic achievement, job performance, career readiness, and well-being. Lastly, literature relevant to approaches and determinants of high-quality EI training interventions will be examined related to the research questions.

Theoretical Models of Emotional Intelligence

The last three decades have shown an emergence of research and attention focused on EI across a wide range of domains. From 1990 to 2017, the Web of Science indexed 622 EI-related papers in the field of education, making education the third most represented topic after psychology and business, and accounting for 13.5% of all EI publications (Keefer et al., 2018). Using the Web of Science database, a search for publications using “emotional intelligence” from 2017 to 2024 yielded 13,687 new EI-related papers of which 1,323 were categorized as in the field of education. This empirical foundation illustrates the acceleration of research examining the role of EI in educational settings and its impact on a wide range of outcomes.

The construct of EI emerged as a formal construct in the 1990s with foundational characteristics rooted in Thorndike’s theory of social intelligence (Thorndike, 1920). Since then, various conceptualizations and models of EI have emerged across diverse fields such as education, psychology, business, and health (Fiori & Vesely-Maillefer, 2018). Broadly defined, EI encompasses a set of competencies involved in the perception, understanding, and management of emotions, which are used both intra-personally and inter-personally (Mayer et al., 2004). Approaches to defining the construct of EI are distinguished conceptually into three groups: ability, trait, and mixed models. Recognized as one of the earliest and most widely cited

frameworks in the literature, Salovey and Mayer's (1990) ability-based model conceptualizes EI as a set of cognitive and emotion-related abilities. In contrast, the trait or mixed-model (Bar-On, 1997; Petrides & Furnham, 2001) conceptualizes EI as emotion-related personality and behavioural dispositions that can be self-reported or observed by others. A key distinction between the two models lies in their measurement: ability EI is assessed through performance-based tests that evaluate emotional knowledge and abilities, while trait or mixed-model EI is measured using self-report questionnaires assessing behaviours, values, and self-concepts (Bar-On, 1997; Petrides, 2009).

Ability-Based Model

Salovey and Mayer (1990) define EI as comprising three inter-related abilities: the appraisal and expression of emotion, the regulation of emotion, and the utilization of emotion for motivation and planning. They further define EI as the "ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (Salovey & Mayer,1990, p.189). The hierarchical model consists of four branches, ranging in complexity from basic abilities to more strategic use of emotional information. These four branches include: perceiving emotions accurately, using emotions to facilitate decision-making, understanding emotions, and managing emotions.

The first branch, the ability to perceive emotions accurately, involves emotion perception and the ability to "identify emotional content in faces, voices, and designs and ability to accurately express emotions" (Mayer et al., 2016, p. 294). Once emotions are perceived, they serve as inputs into the cognitive system. Tests for perceiving emotions typically only assess the ability to identify emotions in external stimuli, for example the type and extent of emotion present in facial expressions, micro-expressions, tone-of-voice, posture, etc. (Mayer et al., 2016).

The second branch involves using emotions to guide cognitive tasks and decision-making. Emotions, once perceived by an individual, can direct attention to critical information, influence task selection and approaches, and generate new emotions to support performance for a specific task (e.g., positive emotions can help focus attention on tasks or decision-making processes). However, this branch has faced criticism for its empirical and theoretical overlap with emotion management (fourth branch) and emotion regulation (MacCann et al., 2020).

The third branch, understanding emotions, refers to an individual's knowledge about emotions and related phenomena. It includes the vocabulary of emotion terms, the antecedents, and consequences of emotions, how emotions can combine or change over time, and the impact of specific situations on emotions now or in the future. Research indicates that this branch is most strongly linked to cognitive abilities among the four branches (MacCann et al., 2020).

The fourth branch, emotion management, involves regulating one's own and others' emotions to enhance positive feelings and reduce negative ones. This requires knowledge of emotion management and related metacognitive strategies. Emotions are managed based on personal goals, with up- or down-regulation used strategically for achieving goals, and a motivational element to when and why emotions are managed. Research shows this branch has the strongest link to personality traits, particularly agreeableness (MacCann et al., 2020).

Ability-based EI is measured through performance assessments that estimate an individual's maximal knowledge and aptitude in responding to stimuli or solving emotion-related problems (Mayer et al., 2002). The most common instrument for measuring ability-based EI is the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), which evaluates EI abilities through 141 items across eight subtests, with two subtests for each of the four EI branches (Mayer et al., 2002).

Trait and Mixed-Models

In the trait-based model, EI is interpreted as a set of emotion-related personality and behavioural dispositions, leading to the assumption that EI overlaps with personality traits and is part of the personality hierarchy (Petrides et al., 2007). Further defined by Udayar et al. (2018), trait EI represents the emotional traits that reflect self-perceptions regarding one's ability to deal with emotions. In this model, EI is assessed using self-reported questionnaires and requires the individual to describe their behaviours, values, and self-concepts (Bar-On, 1997; Petrides, 2009).

Evidence from numerous studies have shown that ability and trait EI measures only weakly correlate with each other (Keefer et al., 2018), and as a result, research has shifted towards a more integrated approach to conceptualizing and measuring EI by incorporating EI abilities and traits as complementary within a unified theoretical framework. As a result, the mixed-model of EI captures a more comprehensive profile of an individual's EI in that it can measure both the emotion-based knowledge and abilities of the ability-based model, along with the individuals' ability to apply this knowledge in their daily behaviours and a mix of EI-related competencies (Keefer et al., 2018).

Mixed models of EI include a broad set of constructs that lead to emotionally intelligent behaviour, including emotion-related abilities, character traits, and motivational elements. The three main conceptualizations of mixed-model EI include Goleman's (1998) model of emotional competence, Bar-On's (2006) model of emotional and social competence, and Petrides and Furnham's (2007) trait EI model.

Goleman's (1998) model of emotional competence conceptualizes EI through four facets: self-awareness, self-management, social awareness, and social skills. As described by MacCann

et al. (2020), Goleman's model distinguishes between awareness, defined as the ability to detect emotional information in oneself and the environment, and management, defined as the capability to regulate and influence one's social and emotional responses as well as those of others (p. 153). Although Goleman's model has been subject to criticism due to limited empirical validation (Locke, 2005), it has nonetheless shown considerable influence in business, leadership, and educational domains (Brackett et al., 2011). Most notably, Goleman's model serves as the foundation for the Collaborative for Academic, Social, and Emotional Learning (CASEL) competency model, which incorporates these four facets along with an additional competency of responsible decision-making (CASEL, 2020). The CASEL model has been widely adopted internationally to guide educational interventions targeting social-emotional competencies (MacCann et al., 2020). The measurement of Goleman's model of EI is conducted through a self-reported instrument, the Emotional Competence Inventory (ECI) developed by Boyatzis et al. (2000), which was later expanded to include social competencies as the Emotional and Social Competence Inventory (ESCI).

Building on Goleman's emotional competence model, the Bar-On (2000, 2006) model of EI emphasizes the key competencies that underpin effective emotional and social functioning. According to the model, individuals' perceptions of their social and emotional competencies influence how they relate to themselves and others, as well as how they cope with environmental stressors. The Bar-On model comprises of five broad domains: interpersonal competence, intrapersonal competence, stress management, adaptability, and general mood. These domains are measured using the Emotional Quotient Inventory (EQ-i), a self-report measure developed by Bar-On (2006) that evaluates 15 subscales aligned with the five overarching domains. The EQ-I is widely used in peer-reviewed research linking EI to academic performance. However,

limitations include its conceptual overlap and strong correlations with personality traits (MacCann et al., 2020), as well as psychometric concerns where only 10 out of its 15 subscales have demonstrated adequate support through factor analyses (Bar-On, 2000, 2006). These issues have contributed to criticisms of EI as a distinct construct.

Lastly, the trait EI model (Petrides, 2007) is defined as emotion-related self-perceptions and dispositions within personality hierarchies. Trait EI theory predicts strong correlations with higher-order personality dimensions; however, research supports its incremental validity over basic personality dimensions and mood for a range of variables in different contexts (Petrides et al., 2007). It is the most comprehensive model blending 15 facets drawn from both the ability and non-ability models of EI. The four ability facets include: accurately perceiving emotions in oneself and others; expressing and communicating emotions clearly; managing others' emotions; and regulating one's own emotions. The 11 non-ability facets include adaptability, assertiveness, low impulsivity, fulfilling personal relationships, self-esteem, self-motivation, social awareness, stress management, empathy, happiness, and optimism (MacCann et al., 2020).

The Trait Emotional Intelligence Questionnaire (TEIQue), developed by Petrides (2009), is an instrument consisting of 144 items and 15 subscales, and is predicated on trait EI theory. It has been used with different age groups, is one of the most frequently used trait-EI instruments in peer-reviewed research yet correlates highly with the five major personality domains (Mayer et al., 2008).

A significant portion of meta-analytic evidence in the EI research supports trait EI as it has produced significantly more research than ability EI. Keefer et al. (2018) found that individuals high in trait EI have higher subjective well-being and quality of social relationships, achieve higher academic and occupational performance, and suffer from fewer physical and

mental health problems. Although there is significantly more research which supports trait EI compared to ability EI, there is still value in a mixed-method approach. Ability-based EI measurements capture individuals' explicit knowledge about emotions and whether they possess an aptitude for emotionally intelligent behaviour, but not necessarily whether they are able to apply their EI knowledge and abilities outside of a structured EI test in their day-to-day behaviours. For example, individuals may demonstrate strong EI knowledge and abilities on a structured EI test but may not be effective in applying these at a behavioural level. The trait EI instruments are more effective at capturing individuals' EI at the behavioural manifestation level, and consequently, what is measured through these tests reflects a mix of EI-related competencies along with other dispositions. This has important implications for practice in educational settings and for the design of EI interventions which integrate instruments to measure and assess EI.

In summary, theoretical models of EI have evolved considerably over the last three decades, leading to distinct yet complementary perspectives on the construct. Ability-based models emphasize cognitive-emotional skills assessed through performance tests, whereas trait and mixed models capture self-perceived dispositions and behaviours through self-report instruments. Although these approaches differ in conceptual foundations and measurement, together they provide a more comprehensive understanding of EI by capturing both knowledge-based abilities and behavioural indicators. In the context of educational research and practice, recognizing the unique contributions and constraints of each model is critical in guiding the design, implementation and evaluation of EI interventions in post-secondary settings.

EI and Positive Life Outcomes

Recent meta-analytic findings by MacCann et al. (2020) provide consistent evidence that EI is positively correlated with key outcome variables across diverse contexts. Importantly,

empirical research has established EI as an independent predictor of positive outcomes across multiple domains, including academic achievement (MacCann, 2020), job performance (O'Boyle, 2011; Miao et al., 2017), career outcomes (Di Fabio & Saklofske, 2014), and well-being (Nelis et al., 2011; Schoeps, 2020). The following section presents a review of research findings supporting the relationship between EI and these outcome variables.

Social-Emotional Learning

Research establishing a link between EI and positive outcomes has stemmed from studies of interventions focused on SEL with K-12 populations (Brackett et al.; 2012; Cipriano et al., 2023; Durlak et al., 2011; MacCann et al., 2020,). SEL is defined as the integration of cognition, emotion, and behaviour into teaching and learning (Brackett et al., 2019), and CASEL defines SEL as follows:

> The process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel, and show empathy for others, establish, and maintain supportive relationships, and make responsible and caring decisions (CASEL, 2020, p.1).

Schools serve as a primary context and ideal environment for the development of students' social and emotional competencies. According to Durlak et al. (2011), universal, school-based SEL programs that aim to enhance students' overall efficacy and socio-emotional competencies contribute to improved behavioural, social, academic, and psychological well-being. Further, the role of SEL for positive student outcomes continues to be a critical area of research as teachers, school administrators, and policy makers seek evidence-based programs that support students' learning, social relationships, and overall well-being. Grounded in Goleman's (1998) model of

EI, the CASEL framework outlines five core SEL competencies: self-awareness, self-management, social-awareness, relationship-building, and responsible decision-making skills (CASEL, 2020). In addition to skill development, SEL programs also aim to foster student beliefs and attitudes about others, themselves, and school (CASEL, 2020). The development of these competencies promotes students' social-emotional functioning, which in turn positively influence academic performance and adjustment (Corcoran et al., 2018). Empirical evidence further suggests that universal, school-based SEL programs are associated with increased academic achievement, psychological well-being, higher-quality social relationships, and decreased externalizing problems, emotional distress, and school dropout rates (Di Fabio & Kenny, 2015).

Additionally, evidence of the positive impacts of SEL programming in supporting the development of the "whole child" has prompted researchers to consider the role of emotional regulation and coping (Boekaerts & Pekrun, 2016) and the role of teachers in modeling emotional skills to support their students' emotional skill development (Hoffman et al, 2018). In an extensive meta-analysis of 213 randomized controlled trials of school-based SEL programs, Durlak et al. (2011) found that SEL programs resulted in an 11-percentile gain in academic performance. Moreover, SEL programs that focused primarily on Goleman's five competencies and the basis of CASEL's model were found to be most effective when specific conditions were met: sequenced, linear, and active learning approaches; adequate time for skill development; and explicit learning goals where teachers/schools led program implementation (Durlak et al., 2011). In effort to replicate and extend upon Durlak et al.'s (2011) influential meta-analysis of school-based SEL programs, Cipriano et al. (2023) examined 424 studies involving a global sample of

K-12 students. Findings indicated that SEL programs had significant global effects on socio-emotional competencies, well-being, prosocial behaviour, and academic achievement.

Academic Achievement

Shuman and Scherer (2014) define emotions as complex, multi-faceted phenomena involving interrelated psychological processes, including affective, cognitive, physiological, motivational, and expressive components. In an academic context, emotions can influence both positive and negative functioning, and affect cognitive processes such as attention, motivation, memory, learning strategies, problem-solving, and self-regulated learning (Boekaerts & Pekrun, 2016). An individual's ability to manage and use their emotions towards the pursuit of a goal and respond in a way that is flexible when the emotion interferes with the pursuit of that goal, is an emotional regulation competency that overlaps closely with EI; defined as “a broad variety of cognitive and non-cognitive abilities that comprise an individual’s emotional competencies” (Boekaerts & Pekrun, 2016, p. 86).

Research investigating EI as a predictor of academic achievement has largely focused on the ability model as the more valid assessment of EI (MacCann et al., 2020). The operationalization of academic achievement varies in the research, including grade point average (GPA) among first-year university students (Garg et al., 2016), standardized reading or math achievement test scores (Durlak et al., 2011), composite outcomes for math, science, and reading (Corcoran et al., 2018), and overall grades and test scores (MacCann et al., 2020). Within EI research, the operationalization of academic achievement has remained consistent with studies examining other moderating factors such as school climate, teacher autonomy, self-regulation, and social relationships (Brackett et al., 2011).

In a global collaborative effort, MacCann et al., (2020) conducted the first large-scale

meta-analysis to examine the extent to which EI predicted academic achievement. Their study built upon prior research, including Durlak et al. (2011), and explored the role of non-cognitive constructs in predicting academic performance. The extensive meta-analysis incorporated all major conceptualizations of EI, all stages of education (from elementary school through to university), and the different facets of EI. Conceptualizations and measurements focused on the three defined streams of EI, including ability, self-rated, and mixed model approaches. Findings from the 158 studies (N = 42,529, k = 1,246) demonstrated strong variance (p = .20) across all three streams of EI with academic achievement (MacCann et al, 2020). Further, the strongest associations were observed for ability EI (p = .24), followed by mixed EI (p = .19), and self-rated EI (p = .12). The research expanded on previous meta-analyses by covering all relevant research, including both ability and self-rated scales, the standardization and categorization of EI scales to explore the unique effects of each construct on academic performance, and lastly, the examination of moderators and predictive validity of EI over and beyond intelligence and personality (MacCann et al., 2020).

In a Canadian study, Garg et al. (2016) examined the direct and mediating effects of EI on first-year university students' GPA through university adjustment (N = 299). The sample consisted of 71% females and 29% males, with students primarily between 17 to 23 years of age (96.7%). EI was measured using the EQ-i (Bar-On, 2006) and academic achievement was operationalized as first-year GPA. Structural equation modeling revealed that EI was not significantly related to academic achievement, but that it was significantly associated with university adjustment, which in turn was significantly related to first-year GPA (Garg et al., 2016). The findings suggested that the impact of EI on academic achievement was mediated by university adjustment, and the authors proposed that interventions aimed at enhancing EI

facilitated first-year students' adjustment and academic success. However, they acknowledged limitations, including the high proportion of female participants, the focus on a single academic discipline (social sciences), and the use of the EQ-i as a general measure of EI.

Job Performance

EI plays a significant role in workplace outcomes, paralleling its influence in academic contexts. Keefer et al. (2018) found that trait EI accounted for 6.8% of the variance in job performance beyond personality and cognitive intelligence, as well as 6% of the variance in mental health outcomes beyond personality and other factors. Meta-analyses by Joseph and Newman (2010) and O'Boyle et al. (2011) provided further evidence for the predictive validity of EI for job performance.

Building on prior research by Joseph and Newman (2010), O'Boyle et al. (2011) examined the unique variance of EI in predicting job performance beyond cognitive intelligence and personality. Their meta-analysis categorized EI measurement methods into three streams: (1) performance-based measures, (2) self-reported ability measures, and (3) self-report mixed models. Findings supported the predictive validity of all three streams of EI for job performance above cognitive ability and personality, with performance-based models explaining 6.4% of the variance, self-report ability models 13.6%, and self-report mixed models 13.2% (O'Boyle et al., 2011). Moreover, correlations between EI, cognitive intelligence, and the Five Factor Model (FFM) of personality varied across EI streams. Notably, self-reported ability measures showed lower correlations with cognitive intelligence than performance-based measures; highlighting distinctions in the relationship between the EI streams with cognitive intelligence and personality (O'Boyle et al., 2011). Limitations in the studies include the operationalization of job performance solely as a measure as task performance, overlooking broader aspects of job

performance such as organizational citizenship and counterproductive workplace behaviours (O'Boyle et al. 2011).

O'Boyle et al. (2011) suggested that future research should explore the relevance of EI in jobs demanding high emotional labor, interpersonal communication, and leadership to determine its comparative significance alongside cognitive intelligence and personality traits. Additionally, investigating how leaders leverage EI to influence team performance may provide valuable insights. Rather than treating cognitive intelligence, personality, and EI as competing measures, future studies should develop integrative models incorporating all three. Finally, O'Boyle et al. (2011) suggested the need for educational training programs designed to develop EI skills. Given its demonstrated importance for job performance, EI is relevant for students and new graduates as they engage in early career experiences, and particularly for those pursuing occupations characterized by high emotional labor.

Career Outcomes

Beyond job performance, there is significant evidence linking EI to positive career outcomes including career decision-making self-efficacy (Di Fabio & Saklofske, 2014; Duru & Söner, 2024; Hamzah et al., 2021), career adaptability (Di Fabio & Kenny, 2015; Parmentier et al., 2019; 2022; Udayar et al., 2018), and self-perceived employability (Udayar et al., 2018). The following section briefly outlines the relevant evidence connecting EI to these career outcomes.

Career Decision-Making Self-Efficacy. Career decision-making self-efficacy (CDSE) refers to individuals' confidence in their ability to successfully perform decision-making tasks relative to their career, such as gathering occupational information, selecting goals, making plans for their future, and problem-solving (Betz et al., 1996). Research examining the relationship between EI and CDSE has shown positive and significant relationships between the two

variables (Di Fabio & Saklofske, 2014; Duru & Söner, 2024; Hamzah et al., 2021), with findings indicating that higher EI correlates with greater CDSE. Research by Di Fabio and Saklofske (2014) examined the relationship between EI and CDSE among Italian high-school students and found that when controlling for fluid intelligence and personality, trait EI was significantly associated with CDSE compared to ability-based EI which did not significantly contribute to CDSE.

More recently, a meta-analysis by Duru and Söner (2024) explored the relationship between EI and CDSE, along with three additional variables. The sample of 45 studies across 16 countries (N = 22,194) encompassed students from elementary, high school, and university populations with more than half of the studies conducted in university settings (n = 23). The meta-analysis revealed a significant correlation between EI and CDSE (r = .45) with a moderate effect size. Additionally, CDSE showed positive moderate correlations with optimism (r = .46), locus of control (r = .36), and proactive personality (r = .47). These findings suggest that career decision-making involves both cognitive and emotional components, with individuals possessing higher EI demonstrating greater ability to manage and regulate their emotions, thereby enhancing their CDSE. Although the meta-analysis was limited by a small number of studies on EI (n = 10) and its cross-sectional design, the findings encourage the development of psychoeducational programs aimed at increasing EI to boost CDSE outcomes (Duru & Söner, 2024).

Career Adaptability. Early research on career adaptability originated from the career construction theory framework (Savickas, 2013) and was defined as a "psychosocial construct that denotes an individual's resources for coping with current and anticipated tasks, transitions, and traumas in their occupational roles" (p. 157). According to Savickas (2013), career adaptability is organized into a structural model and composed of the following four dimensions:

concern (interest in one's own future and preparing to advance to the next step); control (persistence, commitment, self-discipline and taking responsibility for oneself and one's environment); curiosity (exploring possible selves and imagining oneself in multiple roles or situations); and confidence (in one's abilities to realize their own choices and a life project in alignment with one's aspirations). In the context of career management, career adaptability has been shown to predict and mediate employability in young adult job seekers as they prepare for the transition from university to the vocational world (Kwon, 2019). Similar to EI, career adaptability is a self-regulatory strategy that serves as an important psychosocial resource in personal and environmental interactions. Both EI and career adaptability are flexible cognitive-affective characteristics which are developmental in nature, can be improved through training, and other developmental approaches (Johnston et al., 2013; Porfeli & Savickas, 2012).

The relationship between EI and career adaptability is well supported in the literature. In a recent study of undergraduate students at a Malaysian university, Hamzah et al. (2021) investigated the influence of EI on career adaptability and the mediating role of CDSE between EI and career adaptability. The study used a cluster random sampling approach to select 205 final-year students from diverse programs, including business administration, with a predominantly female sample (70.2%). Variables measured included EI using the Schutte Self-Report EI Test (Shutte et al., 1998), CDSE using the Career Decision Self-Efficacy Scale–Short Form (Betz et al., 1996), and career adaptability using the Career Adapt-Abilities Scale (Porfeli & Savickas, 2012). The results indicated a significant positive correlation between EI and career adaptability ($r = .539$, $p < .000$), with EI emerging as a significant predictor of career adaptability ($\beta = .282$, $p = .000$). The results from this study highlight the importance of EI and CDSE in fostering career adaptability, particularly for students entering a rapidly evolving labor

market where adaptability and flexibility are essential employability skills. These findings align with previous studies which have established the significant relationship between EI and career adaptability (Coetzee & Harry, 2014), further underscoring the value of interventions aimed at enhancing these personal resources during academic studies to improve employability outcomes.

In a similar study, Parmentier et al. (2019) conducted a two-wave longitudinal study examining the relationship between EI and career adaptability among adult learners in a French academic setting. The sample included educational science students (N = 282 at T1; N = 208 at T2) with a mean age of 34.22 (SD = 9.06) and was predominantly female (72.3%). Variables measured included EI using the Profile of Emotional Competence (Brasseur et al., 2013) and career adaptability using the Career Adapt-Abilities Scale (Porfeli & Savickas, 2012). Controlling for baseline career adaptability, the study found that EI at pretest significantly predicted career adaptability at posttest, supporting a unidirectional relationship between EI and career adaptability. Generalizability was limited by the focus on adult learners from a specific educational program, a predominantly female sample, and the reliance of self-reported measures.

A subsequent study by Parmentier et al. (2022) examined the relationship between EI and career adaptability profiles among 307 Belgian university students. The sample included undergraduate and graduate students from various disciplines, with a predominantly female (78%) sample, and a mean age of 22.33 (SD = 4.19). Using the same EI and career adaptability measures, the researchers hypothesized that higher EI would correspond to profiles with elevated levels of the four career adaptability dimensions: concern, control, curiosity, and confidence (Hirschi et al., 2015). The study confirmed that individuals with higher EI were more likely to belong to profiles displaying higher levels of the four dimensions. Further, the findings highlighted the association between EI with dimensions of career adaptability and underscored

the importance of tailored interventions to address specific career adaptability profiles. The study was limited by its cross-sectional design and a predominantly female sample.

Although distinct from career adaptability, there is also evidence in the literature that supports the role of EI for adaptive career decision-making processes. Di Fabio and Blustein (2010) examined the role of EI in adaptive career decision-making among 528 Italian high school students (44% male, 56% female). Using the Bar-On EQ-i Short Form (Bar-On, 2006) to measure EI and the Melbourne Decision Making Questionnaire (MDMQ; Mann et al., 1997) to measure decisional conflict styles, the study hypothesized that lower EI would be associated with nonadaptive decisional conflict styles (avoidance, procrastination, hypervigilance) and higher EI would be correlated with adaptive decisional conflict styles (vigilance). Findings supported the hypothesis, indicating that lower EI correlated with nonadaptive decisional styles, while higher EI was associated with adaptive decisional styles. Limitations included reliance on self-report measures and the need to account for additional factors influencing decisional conflict styles (Di Fabio & Blustein, 2010).

Self-Perceived Employability. The positive influence of EI on self-perceived employability is also established in the research literature. Self-perceived employability refers to individuals' confidence in selecting a marketable field of study, attending a reputable school for career preparation, and excelling academically (Rothwell & Arnold, 2007). Further, individuals with high self-perceived employability are more proactive in managing their careers and navigating work transitions. In a university context, Udayar et al. (2018) examined the mediating role of career adaptability between trait EI with career decision-making difficulties and self-perceived employability. The study included a large sample of Swiss university students (N = 400) and validated measures, including the Trait Emotional Intelligence Questionnaire-Short

Form (Cooper & Petrides, 2010), the Career Adapt-Abilities Scale (Porfeli & Savickas, 2012), the Career Decision-Making Difficulties Questionnaire (Gati et al., 1996), and the Self-Perceived Employability Scale for University Students (Rothwell et al., 2009).

The findings revealed that although trait EI did not significantly predict self-perceived employability, it was significantly associated with higher career adaptability, which, in turn, was linked to career indecision (Udayar et al.,2018). Moreover, after controlling for cognitive intelligence, gender, and personality, results showed that career adaptability fully mediated the relationship between trait EI and both career indecision and self-perceived employability (Udayar et al., 2018). These findings suggest that individuals with high trait EI may be better equipped to utilize career adaptability resources, leading to improved self-perceived employability. In essence, the perceived ability to identify and manage emotions (trait EI) appears to activate self-regulatory resources (career adaptability), thereby increasing confidence (self-perceived employment) in securing future employment (Udayar et al. 2018). Additionally, career adaptability fully mediated the relationship between trait EI and career decision-making difficulties, implying that the perceived capacity to understand and use emotions effectively can mobilize individuals' self-regulatory resources, thereby reducing difficulties in career decision-making (Udayar et al., 2018).

Career Readiness. The National Association of Colleges and Employers (NACE, 2022) defines career readiness as the attainment and demonstration of essential competencies that prepare university and college graduates to successfully transition into the workforce and manage their careers over the long term. Post-secondary institutions prioritize the development of these competencies to align with employer expectations, ensuring that students cultivate and articulate the competencies using a common framework. Career readiness competencies are

typically developed through experiential learning, including capstone projects, internships, cooperative education programs, research initiatives, and applied learning experiences within and beyond the classroom.

In the North American context, universities and colleges most commonly reference the NACE competency framework, which identifies eight core competencies essential for new graduates entering the workforce: critical thinking and problem-solving; oral and written communication, teamwork and collaboration, digital technology, leadership, professionalism and work ethic, career management, and global and intercultural fluency (NACE, 2022). Recently launched in 2024, the NACE Competency Assessment Tool was developed as an instrument to assess student proficiency across the eight competencies. The tool incorporates both self-reported assessments and external evaluations of students' competency levels, offering a comprehensive assessment of the student's proficiency for each competency.

Currently, there is limited research examining the specific relationship between EI and the NACE competencies within educational settings. Future research could build on these findings by investigating differences in pre- and post-program competency scores among students participating in initiatives focused on EI and career readiness. Additionally, further exploration of the relationship between EI and NACE competencies across diverse student populations could provide further insights into the role of EI for career readiness.

Well-Being

Finally, there is evidence in the literature of the relationship between EI and well-being for university students. Although not exhaustive, the following section highlights recent research evidence for the role of EI for different dimensions of well-being.

With the many demands that first-year university students face in their transition to

university life, such as academic performance and post-graduation planning, Schoeps et al. (2020) examined the relationship between EI and subjective well-being among university students. Using a quasi-experimental design, the study investigated the effects of an EI intervention for a myriad of outcomes including EI, empathy, positive mood, and subjective well-being. The study included 250 university students from diverse programs, with a predominantly female (75.2%) sample, and a mean age of 21 years (SD = 2.60). The intervention was based on the Mayer and Salovey (1997) four-branch ability model, adapted from a school-based program for a university population, and consisted of seven 2-hour sessions over two months, led by trained psychologists. Emotional intelligence was measured using the Trait Meta-Mood Scale-24 (Salovey et al., 1995), while subjective well-being was assessed both through the Scale of Positive and Negative Experiences (Diener et al., 2010) and the Satisfaction with Life Scale (Diener et al., 1985).

The results demonstrated significant post-intervention gains in EI ($F(1,244) = 4.50$, p = .04, d = .20), as well as increases in empathy, positive mood, and subjective well-being (Schoeps et al., 2020). In addition, when controlling for pre-intervention scores, the experimental condition significantly predicted changes in emotional skills and well-being. Notably, significant differences in emotional abilities and well-being were observed between the experimental and control groups at post-intervention. Although mean differences in EI between the experimental and control groups were sustained and increased over time, follow-up differences were not significant due to sample attrition. Limitations included attrition in both the experimental and control groups, thus reducing statistical power; pretest differences identified between the two groups; and a predominantly female sample. Despite these constraints, the findings suggest that EI programs can enhance EI and subjective well-being in university students (Schoeps et al.,

2020). The implications from this study are relevant for the start of university life, where EI has been shown to predict adjustment and serve as a buffer to challenges faced by first-year students (Garg et al., 2016). Future research could examine the characteristics of effective intervention programs, such as adapting curriculum for specific populations and optimizing EI skill acquisition and application.

In an Iranian university setting, Khazaei et al. (2021) assessed the reliability and validity of the Personal Emotional Capital Questionnaire for Adults, based on the Emotional Capital Model (Newman & Purse, 2007) to examine its correlation with measures of depression, anxiety, stress, and GPA. Utilizing a multi-stage random cluster sampling method, the study included 700 university students with a mean age of 22.1 years (SD = 4.71) from diverse faculties and balanced gender representation (54% female, 46% male). The 92-item questionnaire demonstrated acceptable factor loadings, reliability, and validity. The findings revealed significant negative correlations between overall scores and all ten components of emotional capital with measures of depression, anxiety, and stress. Additionally, significant positive correlations were found between emotional capital and subjective wellbeing (r = .618, p < 0.01) and GPA (r = .685, p < 0.01). Notably, overall scores and each of the ten components of emotional capital showed significant positive correlations with various dimensions of well-being, including emotional, subjective, psychological, and social dimensions. Strong correlations were identified for the EI competency of self-awareness with emotional well-being (r = .79, p < 0.05) and subjective well-being (r = .76, p < 0.01), as well as a moderate correlation for straightforwardness with psychological well-being (r = .46, p < 0.01). The study was limited by a short 30-day retest interval, where a longer interval may have led to more convincing evidence of the scale's stability. Furthermore, to evaluate the effectiveness of training programs aimed at

enhancing emotional capital, a comprehensive approach is needed to determine the impact on both overall emotional capital and its distinct competencies. Finally, given that the emotional capital framework was designed for business contexts, its applicability in assessing emotional capital across other domains may be limited.

Criticisms of EI

Criticisms of EI in the literature primarily focus on its established relationship and conceptual overlap with cognitive intelligence and personality, raising concerns about its incremental validity beyond these constructs (Schulte et al., 2004). A key critique in the literature concerns the distinction between EI and personality, the latter often defined by the Big Five model (Digman & Inouye, 1986) encompassing traits of Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness. Empirical studies have indicated high correlations between scores on the Bar-On (2006) measurement of EI and personality traits, (MacCann et al., 2020), thus raising concerns about EI as a distinct and independent construct. Additionally, research has shown that EI is associated with both cognitive intelligence and personality traits, which are well-established predictors of job and academic performance. For example, O'Boyle et al. (2011) identified cognitive intelligence as the strongest predictor of job performance, while Poropat (2009) found a significant relationship between Conscientiousness and academic achievement (r = .22). To establish the theoretical and practical relevance of EI, continued research is needed to examine its incremental validity relative to cognitive intelligence and personality, thereby clarifying its unique contribution to positive outcomes (Miao et al., 2017). However, emerging research has expanded beyond the examination of EI's overlap with cognitive intelligence and personality, shifting toward the exploration of its associations with

other social-cognitive constructs, such as regulatory emotional self-efficacy (Alessandri et al., 2015).

Another criticism of EI is the limitation of first-generation measures, particularly in establishing valid and reliable assessment of human competencies. Self-report measures, commonly used in trait and mixed models of EI, are susceptible to social desirability bias. Moreover, the scenarios and stimuli used in ability-based EI measures may fail to capture the complexity of real-world interactions (Keefer et al., 2018).

Themes drawn from this literature review of EI-related studies specifically in post-secondary educational settings illustrate variations in study design and a reliance on self-report measures of EI. Further, research conducted with post-secondary students remains constrained by limited academic diversity and a wide variety of EI measures, many not specifically designed for university students. As related to this study, research examining the relationship between EI and the NACE career readiness competencies also remains unexplored.

Given that much of the existing research on EI is correlational, future studies should prioritize controlled and longitudinal designs to establish stronger arguments for causal relationships between EI and pertinent outcomes across diverse populations (Keefer et al., 2018). Some meta-analyses in this review of the literature relied on studies with small sample sizes and cross-sectional designs, thus limiting causal inferences. Further investigation into confounding variables that moderate or mediate the relationship between EI and positive outcomes is also warranted.

EI Training Programs

There is a growing consensus in the educational community that EI is a developmental phenomenon (Durlak et al., 2011) and an important skill for students to develop for

understanding and managing their emotions, for building strong social relationships, for increasing psychological well-being, and for enhancing their future career outcomes. The developmental nature and predictive validity of EI for positive outcomes has led educational leaders and researchers to explore the efficacy of EI training programs and the specific factors that lead to effective program intervention. The results of experimental research examining the effectiveness of EI training interventions for EI and career readiness is promising (Di Fabio, 2018). The evidence provides an impetus for preventative interventions to support career outcomes for youth (Di Fabio & Kenny 2015; Di Fabio & Saklofske, 2014;) and for the development of theory-based training interventions in universities to cultivate these skills (Nelis et al., 2009; 2011). The following section outlines an overview of research findings specific to EI training programs with youth and post-secondary populations, and highlights implementation features of effective program interventions.

Evidence of EI Training for Positive Outcomes

The following section highlights research evidence specific to EI training programs and career outcomes such as career-decision making self-efficacy (CDSE), career adaptability, perceived self-employability, and social support, and with populations in educational settings from high-school to university.

Early research by Di Fabio and Kenny (2011) investigated the impact of an EI training program on EI and career decision-making among Italian high school students ($N = 48$). The program, based on Mayer and Salovey's (1997) four-branch model, consisted of four sessions (duration 2 hours and 30 minutes each) over a one-month period, and utilized both ability and trait EI measures. While no significant differences were found between the experimental and control groups, participants in the training program demonstrated significant increases for both

EI measures, and a decrease in perceived indecisiveness and career decisional problems related to lack of information. These findings highlight the role of EI for career decision-making and as a promising predictor of vocational behaviour (Di Fabio & Kenny, 2011). However, limitations of this study included the small sample size, lack of diverse student representation, and the brevity of the follow-up assessment, thus restricting the interpretation of the intervention's stability effects. Implications included the importance of incorporating EI into education programs, implementing focused interventions based on empirically-supported EI findings in career counseling (Di Fabio et al., 2011), and further research on the implications of performance and self-report measures for EI training programs.

Di Fabio and Kenny (2012) expanded on prior research by examining the relationship between EI, personality, and social support among a larger sample of Italian high school students (N = 309) with a high percentage of female participants (71.2%). Drawing from Mayer and Salovey's (1990) four-branch model of ability-based EI, the study examined the contributions of both self-report and performance measures of EI in relation to perceived social support, controlling for personality traits. The researchers hypothesized that EI would significantly predict perceived social support, and that EI would add significant variance beyond personality traits. Findings from Di Fabio and Kenny's (2012) study indicated that both EI measures contributed to social support variance beyond the effects of personality traits. Interestingly, self-reported EI contributed more robustly to social support compared to the performance EI, suggesting that self-perceptions of EI were more relevant than EI as assessed by performance measures. The findings align with prior research on the association between self-reported EI with positive outcomes, such as perceived social support and adaptive decision-making, and inversely associated with career decision-making difficulties and maladaptive decision-making styles (Di

Fabio & Blustein, 2010). Overall, the study reinforces the role of EI in career development and underscores the value of EI training as a preventative intervention (Di Fabio & Kenny, 2012).

In a subsequent study, Di Fabio and Saklofske (2014) investigated the roles of EI, fluid intelligence, personality traits, and career-related factors among Italian high school students (N = 194). The study aimed to determine if EI contributed additional variance beyond intelligence and personality traits for career decision-making self-efficacy and career indecision. The findings revealed that both self-reported EI measures, assessed by the EQ-i (Bar-On, 2007) and the TEIQue (Petrides, 2009), added significant incremental variance beyond personality traits in relation to all career-related outcomes. When comparing the two EI measures, the Petrides and Furnham (2004) model measured by the TEIQue contributed twice as much variance to career factors compared to the Bar-On (2006) model as measured by the EQ-i. Additionally, personality traits of Extraversion, Agreeableness, and Conscientiousness were significant, while fluid intelligence did not significantly contribute to career decision-making factors.

Finally, in a study of Italian high school students (N = 254), Di Fabio and Kenny (2015) examined the contributions of EI and perceived social support to adaptive career outcomes including self-perceived employability, CDSE, resilience, and social support. EI was measured using the Bar-On EQ-i (Bar-On, 2006), while career outcomes were measured using the Self-Perceived Employability Scale for Students (Rothwell et al., 2007) and the Career Decision Self-Efficacy Scale (Betz & Taylor, 2000). Findings from the study indicated that EI and teacher support were positively associated with resilience, career decision-making self-efficacy, and self-perceived employability, highlighting the importance of social and emotional competencies for career development. Interestingly, students with higher EI showed a stronger correlation with resilience compared to other predictor variables, although the Interpersonal dimension of EI did

not correlate as highly with resilience. The relationship between EI and CDSE was not significant, suggesting that CDSE may encompass factors beyond emotional abilities and teacher support (Di Fabio & Kenny, 2015).

Established EI training programs in school settings have primarily targeted elementary and high school students, as evident by the extensive research on SEL programs. A prominent example is the RULER program (Brackett & Rivers, 2014; www.rulerapproach.org) developed at the Yale Center for Emotional Intelligence. The evidence-based program, underpinned by Mayer and Salovey's 1997 four-branch model of EI, emphasizes the teachable skills of recognizing, understanding, labelling, expressing, and regulating emotions. The program promotes a growth mindset about emotions (Brackett, 2019; Mayer & Salovey, 1997), which include recognizing emotions and emotional cues, understanding emotions and the causes behind them, labeling emotions accurately and with a nuanced vocabulary, expressing emotions appropriately across diverse contexts, and regulating emotions through effective strategies. The school-wide approach of RULER provides students, teachers, administrators, and families the opportunity to develop "branches" of ability model EI resulting in more effective decision-making, social relationships, prosocial behaviours, and self-regulation (Brackett et al, 2011).

RULER employs four anchor tools - The Charter, The Mood Map, The Meta Moment, and The Blueprint – with the aim to effect individual and systemic changes, build a positive school climate, teach specific skills, and create a shared emotional vocabulary among school communities (Brackett et al., 2019). The curriculum is adaptable across developmental stages from preschool to high school and includes activities to engage families (Hoffman et al., 2018). Research indicates that schools which integrated RULER into classroom learning experienced a more positive and improved emotional climate compared to schools assigned to the comparison

group (Rivers et al., 2013). Further, results from a clustered randomized controlled trial indicated significant emotional support and regard for student perspectives, with teachers using RULER more likely to report emotion-focused interactions with students (Rivers et al, 2013). However, Brackett et al. (2019) emphasized the need for valid performance-based SEL assessments and further research on implementation fidelity. Additionally, evaluating RULER across diverse sub-populations would offer a richer perspective on program effectiveness and adaptation strategies of the program (Hoffman et al., 2018).

Consistent with findings in elementary and high school settings, research evidence with post-secondary populations demonstrates that EI can be improved through training and is associated with adaptive career outcomes across diverse contexts. Supporting this, Hodzic et al. (2018), in their meta-analysis, examined the evidence for the effectiveness of EI training programs and identified key determinants of training effects. The analysis of 28 samples from 24 studies (N = 1,986) focused on EI training effects among healthy adults across six EI models, with the Mayer and Salovey (1997) ability-based EI model identified as the most prevalent. Results indicated that EI training had a moderate effect on EI, with training based on ability-based models yielding significantly higher effects than trait models. A notable difference in training effects was observed between the dimensions of understanding emotions and facilitating thought within the Mayer and Salovey (1997) four-branch model, implying different operating levels of EI and indicating the need for longer and more repetitive training to translate EI knowledge into practice. The results demonstrated a statistically significant moderate standardized mean change between pre- and post-training measurements, with a sustained effect from pretest to the follow-up assessment. Significant moderating factors included the EI model, the specific dimensions of the four-branch model, the duration and length of the training

duration, and the type of publication (Hodzic et al., 2018).

In a Belgian context, Nelis et al. (2009) evaluated an EI training program for university students ($N = 37$), using an experimental design. The experimental group ($n = 19$) included 15 females and 4 males, with a mean age of 21 years. Theoretically grounded in the Mayer and Salovey (1997) four-branch model, the program followed a sequence of weekly 2.5-hour training sessions, incorporating a range of learning tasks such as lectures, assignments, and role plays. Trait EI was measured using the TEIQue instrument (Petrides, 2009) at pre-, post-, and six-month follow up. The experimental group demonstrated significant increases in trait EI ($t(18) = -2.29$, $p = .033$) compared to the control group ($t\ (17) = -0.13$, $p = .898$), with effects persisting at six-months follow-up ($t\ (18) = -2.25$, $p = .036$) (Nelis et al., 2009). The EI intervention showed to be effective at increasing overall levels of trait EI for students who took part in an EI training group compared to the control group. However, the small and homogenous sample, primarily female and from social sciences, limited the generalizability of the results.

In the United Kingdom, Dacre Pool and Qualter (2012) implemented a longer EI training program based on Mayer and Salovey's 1990 four-branch model of EI into a career planning course, spanning 11 weekly two-hour sessions. The study included 2nd and 3rd year undergraduate students ($N = 134$) from diverse disciplines, and variables measured included the MSCEIT (Mayer et al., 2002), the Emotional Self-Efficacy Scale (Kirk et al., 2008), and cognitive ability using GPA. The diverse curriculum included lectures, case studies, reflective activities, group discussions, and role plays. Results showed a significant intervention effect for students in the EI course compared to the control group. Specifically, ANCOVA results revealed significant increases in ability EI branches of understanding emotions ($F(1, 91) = 8.90$, $p < .01$, partial $\eta^2 = .09$), managing emotions ($F\ (1, 91) = 4.88$, $p < .01$, partial $\eta^2 = .09$), along with

significant effects for emotional self-efficacy (Dacre Pool & Qualter, 2012). Altogether, these findings demonstrate the efficacy of the intervention for enhancing ability EI, particularly in the areas of understanding and managing emotions. Limitations included the reliance on a single data source (e.g. participants) and a lack of longitudinal data to examine follow-up effects.

Relevant to the role of EI training for enhancing career outcomes, Nelis et al. (2011) examined the effectiveness of an 18-hour intervention for undergraduate students ($N = 92$) based on Mayer and Salovey's four-branch model of EI. The intervention included targeted sessions to develop specific emotional competencies, such as identifying and understanding one's own emotions, identifying emotions in others, regulating emotions, and using positive emotions to promote well-being. Using a randomized controlled design, the findings indicated that students in the EI training group demonstrated significant improvements in global emotional competence ($d = 0.16$), emotion regulation ($d = 0.61$), and employability ($d = 0.47$), compared to both a no-intervention control group and an active control group engaged in drama improvisation. Employability was operationalized as the probability of being hired by a future employer based on evaluations of participants' mock interviews with HR professionals. Importantly, these gains were not only specific to the training condition and remained stable of a six-month follow up period (Nelis et al., 2011). Altogether, these findings provide compelling evidence that even brief, structured training interventions can effectively enhance emotional competence and career-related outcomes for students in a post-secondary context.

In an American context, Cram et al. (2023) evaluated the effectiveness of a career readiness program aimed to enhance students' preparation for the workforce by certifying their attainment of 21st-century skills through micro-credentials. The three micro-credentials focused on developing knowledge in AI, EI, and data science, with educational content spanning over 16-

20 hours. The EI micro-credential emphasized personal and social awareness, self-management, and relationship skills through emotional regulation, self-talk, and empathic listening strategies. Among 49 enrolled students, 11 completed a survey on learning experiences. Of these, 64% felt better prepared to discuss their strengths and weaknesses, 55% felt more comfortable receiving critical feedback, and 46% perceived improved employability. Additionally, 73% intended to include the credential in hiring processes, and 64% felt confident applying EI skills in the workplace. Interestingly, completion rates were higher in the curricular mode (85%) than the co-curricular (48%), with a statistically significant association between delivery mode and completion [$\chi 2(1, N = 49) = 7.51, p < 0.05$]. Limitations included a small sample size and survey response rates, with aims for future research to include employers' perceptions of the value of micro-credentials in meeting workforce demands (Cram et al., 2023).

Lastly, Mattingly and Kraiger (2019) conducted a meta-analysis to evaluate the effectiveness of training programs aimed at enhancing EI in workforce settings. Their findings indicated a moderate positive effect of training on EI, with higher effect sizes observed in pre-post designs ($g = 0.61$) compared to treatment-control designs ($g = 0.45$). The results demonstrated that training programs were generally effective at increasing EI, with no significant differences in training outcomes between EI conceptualization (ability-based versus mixed-model measures) or participant gender. However, despite evidence supporting the positive impact of training on EI, it remained unclear which specific components of EI training were most effective. Limitations of the study included variability in EI assessment measures and the predominance of self-report measures across the included studies. Moreover, many of the studies lacked detailed descriptions of training components, which limited the analysis of specific properties on training program effectiveness. To advance understanding of EI training

effectiveness, the authors recommended that future research employ more rigorous methodologies and provide comprehensive reporting on training characteristics and outcomes.

Features of Effective EI Training Programs

Given the diversity of EI interventions, identifying the key determinants of effective training and program design is essential. Research on SEL has demonstrated that interventions grounded in high-quality design and implementation yield significant and positive effects (Durlak et al., 2011). In a large meta-analysis of universal school-based (USB) SEL interventions for K-12, Cipriano et al. (2023) found significant results for USB SEL interventions across a wide range of outcomes, including improved social-emotional skills and academic achievement. The systematic review, which synthesized findings from 424 studies across 53 countries, indicated that intervention features and implementation quality moderated student experiences and outcomes, signaling the importance of high-quality design and implementation.

Several factors contribute to the effectiveness of SEL interventions, including program structure, implementation strategies, and school climate, all of which can be adapted to EI interventions in both educational and post-secondary settings (Taylor et al., 2017). Establishing an "emotionally intelligent" school requires a comprehensive approach that integrates training across curricula, provides professional development training for all personnel to build self-efficacy and foster a supportive climate, and actively engages families throughout the learning process to reinforce EI development (Hoffman et al., 2018). The following section will review the key characteristics of effective EI training programs, focusing on intervention design and content, strategies to maintain fidelity and quality, and the broader environmental and contextual factors that influence implementation success.

Content Design

The first critical factor for effective EI intervention is content underpinned by theoretical models and evidence-based pedagogy. Hodzic et al. (2018) identified key characteristics of successful EI training which included adherence to an empirically validated model, pre- and post-training measurements of EI, and the inclusion of both control and intervention groups. Cipriano et al. (2023) found that the most common theoretical models in SEL programs included the Mayer and Salovey (1997) ability-EI model and the CASEL SEL Framework (CASEL, 2020).

A meta-analysis conducted by Durlak et al., (2011) suggests that effective EI interventions adhere to pedagogical practices and program implementation structures which are connected and coordinated, such as the SAFE criteria—Sequenced, Active, Focused, and Explicit. These criteria were met by 89% of the interventions reviewed by Durlak et al. (2011) and are considered the best practice for quality program design by Taylor et al. (2017). The structure of the intervention was also found to be critical for efficacy, such that interventions which followed a sequence and met all SAFE features yielded larger effects for improvements in SEL skills ($g = 0.118$, $p < .05$**)** compared to programs that did not. However, recent meta-analytic research has struggled to evaluate the role of SAFE as a factor associated with long-term SEL outcomes due to the limited number of programs effectively meeting the SAFE criteria (Corcoran et al., 2018). In addition to SAFE criteria, Cipriano et al. (2023) examined the specific content and content combinations yielding the best outcomes. Findings suggested that sequencing skill development was important and specifically, the value of teaching emotion skills before social skills to produce the strongest effects of SEL programming.

Implementation Strategies

A second critical feature of effective program implementation is the duration and fidelity of the intervention. Program duration significantly influences efficacy and can be captured by the duration of the intervention, the length of each session, and number of discrete sessions. Cipriano et al. (2023) hypothesized that interventions longer in duration would produce significant effect size improvements compared to shorter programs; however, their findings indicated that interventions lasting half a school year were more effective in reducing student externalizing behaviours (g = -0.12, $p < .05$) compared to year-long interventions (Cipriano et al., 2023). Additionally, they found that on average, training programs consisted of 6.09 sessions, each lasting 2.57 hours, and totaling 4.46 hours per week. Furthermore, most programs (93%) followed a fixed schedule with clearly defined individual goals. Consistent with the recommendations of Durlak et al. (2011), longer and more frequent training sessions were found to enhance effectiveness, with each additional hour per week contributing to a .03 increase in effect size.

There is also evidence in the literature that fidelity – defined by the dosage and adherence to the program design, is essential to intervention effectiveness. Cipriano et al., (2023) found that training interventions included both experiential methods (e.g., skills practice, reflective writing, discussing emotions) and theoretical approaches (e.g., lectures, group discussions, videos, and readings). While their meta-analysis did not assess the comparative efficacy of these approaches, it highlighted that effective interventions typically include group discussions and interactive participation. The average time interval between pre- and post-measurements was 2.06 months, with some studies extending up to 9 months. Interestingly, only 25% of the studies in the meta-analysis included follow-up measurements, a limitation that restricts the understanding of

stability effects for such interventions. Furthermore, monitoring implementation was also a limitation of the review and despite its recognized importance in evaluating the impact of SEL interventions (Durlak, 2016), only 45% of the reviewed studies systematically monitored implementation.

Environment and Context

The third critical factor shaping the effectiveness of EI interventions is the environment and context in which it is implemented. Research indicates that effective programs are classroom-based, integrated into academic instruction, and adaptable to diverse educational contexts (Cipriano et al. 2023). Keefer et al. (2018) emphasize the role of social-cognitive approaches in SEL programs, highlighting the importance of social context in understanding how EI functions and moderates its effects on student outcomes. Additionally, school-wide, and comprehensive approaches that actively engage all stakeholders involved in students' education experience are critical to ensuring the effectiveness of SEL programs (Boekarts & Pekrun, 2016; Hoffman et al., 2018). Effective school-based interventions for K-12 students often adopt an interactionist perspective, which considers both individual and contextual factors (e.g., culture, race, sexuality, disability, gender, and SES) (Durlak et al., 2011). Cipriano et al. (2023) further highlight the importance of recognizing student identity to determine when, for whom, and under which conditions USB SEL yields the most significant outcomes.

Research by MacCann et al. (2020) supports the integration of EI training programs within school settings to enhance students' ability to understand and manage emotions, skills that are strongly linked to academic achievement. Further, implementing EI-focused programs that develop these key facets of EI has the potential to positively impact both social-emotional and academic performance outcomes. To maximize outcomes for students at all stages of

development, EI training should be incorporated into existing curricula, grounded in evidence-based practice, and tailored to meet the needs of specific student populations (Durlak et al., 2011, Taylor et al., 2017).

Empirical evidence strongly supports the notion that implementing SEL and EI programming requires a school-wide approach. According to Durlak et al. (2011), programs led by teachers that adhere to recommended practices with minimal implementation problems (i.e., strong fidelity) are most effective in achieving positive outcomes. The successful implementation of SEL and EI programs depend on the careful design and implementation of evidence-based practices, which have been shown to be most effective when facilitated by trained teachers and school personnel. These programs achieve the best outcomes when they adhere to high-quality design, minimize implementation difficulties, and are integrated into the classroom (Durlak et al., 2011).

Facilitator training, which varies depending on the SEL or EI program, has also been shown to impact teacher EI and overall program effectiveness. Brackett et al. (2019) identified best practices for facilitator training, including the inclusion of RULER into new teacher induction programs, ongoing professional development, and the use of self-evaluation frameworks to ensure collective understanding of RULER for all educators in the school. Furthermore, school-wide approaches such as RULER integrate EI principles into academic content, school policies, and family engagement strategies to effectively support how “leaders lead, teachers teach, students learn, and families parent” (Brackett et al., 2019, p.150). Interestingly, RULER is not introduced to students until adult stakeholders are fluent in EI concepts and the RULER tools. This approach ensures that educators are equipped to practice

and model EI in their classrooms and school and effectively implement the RULER tools with a focus on fidelity (Brackett & Rivers, 2014).

When considering the effectiveness of teachers or external facilitators in program implementation, Voith et al. (2020) found that external facilitators were less effective, even when assessed as competent by teachers and administrators. The study, which employed a mixed-methods approach, examined program acceptance (adoption), facilitator competence (implementation), and student outcomes (evaluation) of an SEL program aimed at low-income, at-risk students ($N = 287$) across three school types (charter, private, and public). For program acceptance with teachers and administrators, the strength of the program design included an effective dosage and longitudinal design (duration 28-weeks), a robust theoretical underpinning for facilitator training and program design, and program sustainability where significant training and ongoing professional development was provided for facilitators. Voith et al. (2020) found that theory-driven, evidence-based programs enhanced teacher effectiveness in modeling SEL behaviours, led to increased adoption by teachers and administrators, and fostered a positive school climate which set the foundation for sustained commitment to SEL programs. Despite rigorous program design and implementation, several factors limited the program effectiveness, including the absence of a control group, which restricted the ability to infer causality. The researchers indicated that future research to evaluate the factors that led to stronger effect sizes, longer-term sustainability, and positive student outcomes (Voith et al., 2020).

Finally, EI programs have been effective for teachers in developing their own EI. In a study by Castillo-Gualda et al. (2017) involving 54 teachers from two schools, teachers in the experimental group ($N = 32$) received 24 hours of RULER training over three months. Post-training assessments indicated that teachers showed higher levels of vigor, dedication, and

absorption in their work, as well as improved EI scores. Vesely-Maillefer and Saklofske (2018) further stress the importance of EI training for educators, as they are most optimally positioned to promote EI and other resources in their classrooms. Additionally, Vesely-Maillefer (2015) found that an EI training program designed for preservice teachers led to significant and lasting increases in trait EI, task-focused coping strategies, and teacher efficacy among participants in the intervention group (n = 34) compared to the control group (n = 21), which did not see significant changes. These findings underscore the importance of incorporating EI training into teacher education programs, not only to enhance students' emotional competencies but as a preventive measure to support teacher well-being and help them cope more effectively with the stressors of the teaching profession.

In summary, the overarching themes for effective EI interventions as drawn from research in SEL and EI training include: high-quality program design anchored in theory and evidence-based practices; implementation fidelity including effective dosage and duration; and rigorous facilitator training leading to teacher effectiveness in modeling SEL/EI skills, They should also include school-wide approaches inclusive of teachers, administrators, and families; and program sustainability through the infusion of SEL/EI training into academic curriculum, policies, and practices.

Limitations and Future Directions

A review of the literature on EI training programs revealed several limitations and directions for future research. The three key areas requiring further exploration include the diverse conceptual approaches and measurements used in EI training programs; the need for longitudinal and experimental studies to assess the efficacy of EI training in post-secondary populations; and the role of demographic and contextual factors on training outcomes.

A significant challenge in the existing literature is the variability of approaches informing EI training program design and implementation; therefore, additional research is needed to identify which models, measurements, and implementation features are most effective in yielding positive outcomes across diverse student populations. Future research should examine the implications of self-reported versus performance-based measures for EI training programs and continue investigating the predictive validity of EI above other factors such as cognitive intelligence and personality. Examining the key determinants and potential moderators of program effectiveness, including implementation fidelity, training duration, and EI models, could enhance understanding of the broader impact of training on EI and other important outcomes.

Beyond evaluating the content and structure of effective EI training programs, more comprehensive research is needed to delineate the impact of interventions on both EI and its distinct facets. Future studies should continue to examine the relationship between the facets of EI and variables discussed in this review, including academic achievement, job performance, well-being, and career outcomes. For example, studies could explore the effectiveness of educational programs targeting specific EI skill development (O'Boyle et al., 2011) and psychoeducational interventions aimed at enhancing EI for improved career outcomes such as CDSE (Duru & Söner, 2024). Longitudinal research that incorporates pre-, post-, and follow-up assessments of EI and the NACE career readiness competencies, would also provide valuable insights into the association between EI and career readiness among post-secondary students. Additionally, large-scale, randomized controlled studies should be prioritized to establish causal relationships between EI training and key outcome variables (Corcoran et al., 2018). Such studies should incorporate evidence-based EI program designs, effective implementation strategies, and follow-up measures to assess proximal and distal outcomes. Furthermore,

longitudinal studies should include follow-up measurements to assess the stability of EI training effects over time and to determine the sustainability of program gains.

Despite the extensive research on EI interventions conducted in K-12 populations, studies focusing on post-secondary students remain limited in comparison. As suggested by Garg et al. (2016), EI training programs tailored for first-year students may facilitate university adjustment, potentially leading to increased retention and academic achievement. These programs can be particularly beneficial for university students with low stress management, general mood, and optimism – key EI components significantly associated with the personal and social aspects of adjustment for first year students as they navigate the demands of university life (Garg et al., 2016). Building on evidence-based programs such as RULER (Brackett & Rivers, 2014), which primarily target preschool to high school students, future research could explore the applicability of RULER in higher education, particularly in relation to academic achievement, career readiness, and well-being. To expand the meta-analytic findings from MacCann et al. (2020), integrating EI training into university settings may strengthen students' ability to understand and manage emotions, with meaningful implications for both social-emotional development and academic outcomes.

MacCann et al. (2020) further suggest that to maximize effectiveness, EI programs should target specific EI skills across different developmental stages, from elementary through to post-secondary education, and remain grounded in evidence-based practices. Therefore, future research on the demographic factors that influence the effectiveness of EI training programs should prioritize identifying the specific demographic groups that benefit most from EI training. For example, Hodzic et al. (2018) emphasized that participants' overall mental and physical health are critical variables influencing EI training outcomes, as they contribute to individual and

contextual variability. To ensure consistency in effect estimates, their meta-analysis included only studies with mentally and physically healthy participants, noting that health-related distress may alter emotional responses and thus impact the efficacy of EI interventions (Yalcin et al., 2008). Moreover, studies should examine the role of contextual factors, such as family, social and cultural influences, in driving effective EI training. Further evaluation of programs across diverse sub-populations is needed to understand the variability of program effectiveness and to inform program adaptations in the future. Future research could also explore the impact of identity and intersectionality to gain insights into learner variability along with the cultural adaptations necessary for transformative SEL programs to support all learners (Jagers et al., 2019).

Finally, Cipriano et al. (2023) emphasize the importance of longitudinal studies examining the effectiveness of SEL programs on student and educator outcomes, as well as broader school variables. The literature for SEL programs illustrates the importance of school-wide approaches to integrating EI training into curricula, as well as the necessity of teacher training for effective program implementation. A promising avenue for future research is the examination of EI training for teachers and its impact on both teacher EI and their effectiveness in facilitating EI training for positive student outcomes.

Research Questions

Despite growing evidence supporting EI and SEL training programs in educational contexts, notable gaps persist in the empirical literature. While the positive effects of SEL interventions are well-documented in K-12 settings, less research has examined the application and efficacy of EI training interventions within post-secondary educational settings. Few studies have concurrently examined the impact of EI training program on both EI and career readiness

among university students, especially within a Canadian context. Moreover, prior research has been characterized by variability in program design, measurement tools, and reporting of training components, therefore constraining the ability to identify specific activities that contribute to training effectiveness. To address these gaps, the present study evaluates the impact of an EI training program (Career EQuip) on both EI and career readiness competencies among post-secondary students.

Based on the identified gaps in the literature, the following research questions are proposed for the present study:

Research Question 1: What is the effectiveness of the EI training program (*Career EQuip*) on students' emotional intelligence?

Null Hypothesis 1a: For participants in the EI training program, there will be no significant increase in scores from pretest to posttest for each of the 10 EI competencies, as measured by the Emotional Capital Report (ECR).

Null Hypothesis 1b: For participants in the EI training program, there will be no significant increase in scores from pretest to posttest for total scores of EI, as measured by the Emotional Capital Report (ECR).

Research Question 2: What is the effectiveness of the EI training program (*Career EQuip*) on student career readiness?

Null Hypothesis 2: For participants in the EI training program, there will be no significant increase in scores from pretest to posttest for each of the eight career readiness competencies, as measured by the RBC Future Launch Survey.

Chapter 3: Methods

This chapter will outline the research design, participants, and the measures used in this quasi-experimental, within-subject study. The procedures for ethics, survey administration, data collection, and analysis will be summarized.

Research Design

The present study employed a secondary research design using pre-existing data that were not originally collected for research purposes. The quantitative data was originated from surveys administered during the delivery of a pilot program developed, implemented, and evaluated by the Business Co-op and Career Center at the University of Victoria (UVic). Although the program was designed to support student skill development rather than as a formal research study, the availability of systematically collected program data offered a unique opportunity to retrospectively examine program outcomes. The use of secondary data in this context allowed for the evaluation of the program's effectiveness in an applied educational setting while minimizing additional participant burden and ensuring the ethical use of existing data.

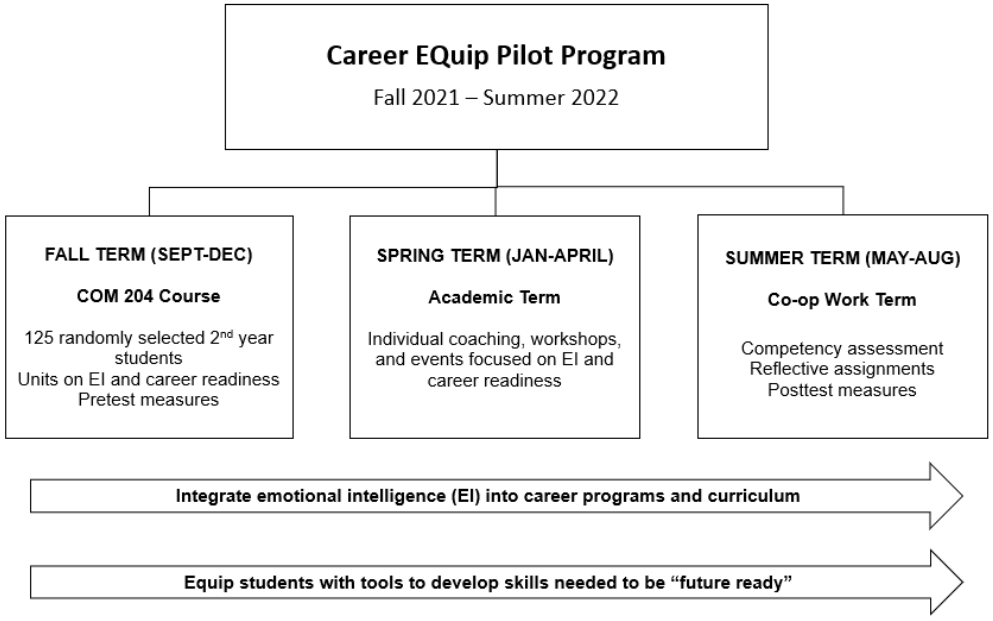
The pilot program, titled *Career EQuip* (hereafter referred to as "the program"), was initially developed in 2020 to enhance experiential learning opportunities aimed at increasing students' EI and career readiness for future work. Specifically targeting undergraduate business students, the program sought to foster the development of critical skills essential for future career success, with an emphasis on the Emotional Capital Model (Newman, 2007) and career readiness competencies as outlined by the National Association of Employers and Colleges (NACE, 2022). The program's core learning objectives included: (1) enhancing student self-awareness regarding their interests, strengths, values, and skills relevant to future career pathways; (2) increasing

student understanding of emerging labor market trends and the competencies required for success in a rapidly evolving global economy; and (3) equipping students with the knowledge and practical strategies necessary to develop EI and career readiness competencies.

Program outcomes were primarily achieved through the mandatory course *COM 204: Introduction to Professional Practice,* which combined in-class learning with assignments completed both in-class and asynchronously through self-directed curriculum. The course is a requirement for all undergraduate business students in the mandatory co-op program at UVic and is typically undertaken in the second or third year of their four-year degree program. The primary objective of the course was to develop students' EI knowledge and skills through theoretical instruction, reflective practice, and targeted skill development. The curriculum spanned nine 1.5-hour weekly sessions over a 12-week term and included individual assessments of EI and career readiness surveys at both the beginning and conclusion of the pilot program (see Figure 1).

Figure 1

Overview of Career EQuip Pilot Program



Note. Timeline of the Career EQuip pilot program components for Cohort 2 delivered from Fall 2021 to Summer 2022. Key elements include the COM 204 course with core instructional units focused on EI and career readiness, optional workshops and individualized coaching, and a co-op work term including reflective assignments. Pretest and posttest measures of EI and career readiness were collected approximately 10 months apart.

The existing curriculum for the *COM 204* course was enhanced for this pilot program with three new units: (1) Career Development - Designing the Co-op and Career Journey, (2) Emotional Intelligence - Understanding the Role of EQ in Career and Leadership Development; and (3) Career Readiness - Building Career Readiness for the Future of Work. These units incorporated the 10 EI competencies from the Emotional Capital Report (Newman & Purse, 2007) and the eight career readiness competencies identified by NACE (2022). Content from these was condensed into the initial three weeks of the course and further integrated into subsequent curriculum components. Course requirements included the completion of an individual EQ assessment, participation in peer group debrief sessions facilitated by a trained instructor, submission of reflective practice assignments focused on EQ competency development, and assessments of learning.

Additionally, students participated in a mock interview clinic and had access to optional and confidential EQ coaching with their instructor. The program employed a variety of learning methodologies, including didactic instruction, experiential activities, asynchronous learning, group discussions, individual reflective exercises, quizzes, and class check-ins aimed at enhancing students' emotional vocabulary (see Table 1). Classroom sessions were held in-person at UVic and facilitated by two instructors. Over the course of the program, participants engaged with their course instructor for individualized support, including co-op preparation, skills coaching, and guidance in setting and pursuing EI development goals and action plans. Finally, students completed pretest and posttest measures for EI and career readiness approximately 10 months apart. The pretest measures were administered as part of Units 1 and 2 of the *COM 204 Career EQuip* course, while the posttest measures were completed during the Summer 2022 co-op work term course near the end of the pilot program. All measures were completed online.

Table 1

COM 204 Career EQuip Course Content and Learning Outcomes

Unit	Unit Title	Learning Outcomes	Measures
1	Designing Your Co-op & Career Journey	• Define career using evidence-based models of career development • Identify career readiness competencies that employers seek in future-ready graduates • Understand the role of experiential learning (co-op) for career development	• Career Readiness Survey* • Journal Reflection #1
2	Understanding the role of EQ in Career and Leadership Development	• Define EI • Understand EI as a set of skills necessary for career and leadership development • Identify the 10 competencies of EI	• Emotional Capital Report (ECR)* • Quiz
3	Building Career Readiness for the Future of Work	• Understand and apply effective approaches to giving feedback and active listening skills • Interpret individual and group ECR profile summaries to develop understanding of 10 EI competencies • Identify individual EI strengths and areas for development • Create SMART goals for developing EI competencies	• Group Feedback Session • Journal Reflection #2

Note. EI = emotional intelligence.

*****Measurements conducted at pretest and posttest.

Instruction

The two lead instructors and one supplementary instructor, who also served as the project coordinator, taught the three course sections. All instructors participated in the design or evaluation of the overall pilot program and course curriculum. They received training and certification in the use of the psychometric inventory and had prior experience teaching the curriculum through their instruction of *COM 204: Career EQuip* course for Cohort 1. After the completion of Cohort 1, the program was evaluated and revisions were made based on instructor feedback, with modifications informed by course evaluations. All instructors reached consensus on the final version of the program.

COVID-19 Pandemic

During the design, implementation, and data collection phases of the program, the COVID-19 pandemic led to significant global disruption, profoundly impacting post-secondary students. Research by Hamza et al. (2021) describes the global pandemic's effects on this population as "unparalleled", with notable challenges to mental health and well-being. Moreover, research by Bedi et al. (2024) emphasized that these highlighted difficulties were often amplified for international students in a post-secondary context, an important consideration given that 10% of the sample were international students. Altogether, these unprecedented circumstances necessitated adaptations in instructional methods, emphasizing the need to consider the effects on student learning, mental health, and well-being within this unique context.

Data for this study were also collected while university students were adapting to new modes of post-secondary education. The participants, all second-year undergraduate students, had completed their first year of learning entirely online. For many, the beginning of the program coincided with their first on-campus and in-person learning experience in a post-secondary

setting. At that time, UVic transitioned from remote learning, implemented from March 2020 to September 2021, back to in-person instruction. Despite the lifting of lockdown measures and comprehensive health and safety protocols in place, COVID-19 transmission persisted across British Columbia with reported cases peaking during the Omicron Wave in January 2022 (BC COVID-19 Modelling Group, 2022, slide 4). This included a significant off-campus cluster at UVic (Island Health, 2021) involving 124 COVID-19 cases. With the return to campus, UVIC implemented comprehensive measures to mitigate the spread of COVID-19 on campus, including daily health assessments, mask-wearing in classrooms, and enhanced ventilation systems and sanitization protocols (UVic, 2023).

Participants

The program, launched as a two-year pilot in August 2020, included 100 second-year business students in the first year (Cohort 1), and 125 in the second year (Cohort 2), resulting in a total of 225 participants. In the first year of the program (Cohort 1), 100 students participated in the pilot version of the COM 204 course, representing approximately 50% of the total number of business students enrolled in the co-op program. This cohort completed the course in a fully online format due to COVID-19 restrictions. Cohort 1 was excluded from the current study due to inconsistencies in pretest and posttest measures. Specifically, during the design and initial delivery of the pilot program for Cohort 1, the full RBC Future Launch survey and dashboard were not yet available; as a result, the pretest data were collected using alternative survey items that differed from those administered at posttest once access to the full survey instrument had been obtained. Consequently, the absence of consistent measurement across both time points limited the ability to conduct valid pre-post comparisons for Cohort 1. This study therefore focuses exclusively on Cohort 2, for which consistent pretest and posttest measures were

employed. Participants in Cohort 2 were randomly assigned to the program and unaware of the pilot program when registering for the COM 204 course, as course section was selected solely on individual scheduling preferences and availability.

A total of 125 students were enrolled in the course, all of whom were second-year students at the UVic. Of these, 121 students completed the mandatory course component and were included in the analysis. Participants ranged in age from 18 to 34 years (M = 20.5, SD = 1.5) and identified primarily as male and Canadian. A small proportion of participants represented a diverse range of nationalities, each constituting less than 2% of the sample. It is important to note that survey instruments differed in terminology for age and nationality. For the RBC survey, participants selected their specific age year, whereas the ECR survey required a full date of birth. Similarly, the definition of nationality varied, as the term “Canadian” in the RBC survey could have potentially included individuals from diverse racial backgrounds.

Table 2

Participant Demographics (N = 121)

Variable	*n*	%
Gender		
Female	40	33.1%
Male	80	66.1%
Non-binary	1	0.8%
Age		
18–20 years	—	Majority*
21–34 years	—	—
M = 20.5, *SD* = 1.5	—	—
Nationality		
Canadian	109	90.1%
Chinese	2	1.7%
American	1	0.8%
Congolese	1	0.8%
Filipino	1	0.8%
German	1	0.8%
Indian	1	0.8%
Irish	1	0.8%
Romanian	1	0.8%
South African	1	0.8%
South Korean	1	0.8%
Taiwanese	1	0.8%

*Note***.** Four students withdrew from the course or program and are not included in the table. Percentages are based on the 121 students who completed the course. Nationality data are self-reported and reflect varied interpretations of the term "Canadian," including individuals from diverse racial and ethnic backgrounds. Age categories were derived from two survey instruments with different demographic input formats (i.e., age year vs. date of birth).

*The majority of participants were between 18 and 20 years of age.

Measures

As part of the course requirements, students completed two separate measures at pretest and posttest to assess scores for EI, career readiness, and workplace preparedness. These included the Emotional Capital Report (ECR; Newman & Purse, 2007), a validated psychometric measure of EI, and the RBC Future Launch Survey[1], a proprietary survey developed by RBC to measure students' career readiness and workplace preparedness (RBC Future Launch Survey, unpublished survey). The following section will detail the purpose and design of each measure in relation to the research questions, address reliability and validity of each measure, and outline modifications of the RBC Future Launch Survey to include the career readiness competencies defined and validated by NACE (2022).

Emotional Capital Report (ECR)

The ECR is a psychometric inventory used to provide an efficient, valid assessment of the EI factors that support effective leadership behaviours based on empirical research and a well-researched model of EI - the Emotional Capital Model (Newman & Purse, 2007). The measurement was selected given the focus on EI and leadership within a business context.

The ECR is a self-report measure of emotional and social competencies linked to EI and leadership, developed from a comprehensive review of the research on the relationship between mixed-models of EI and leadership over a 10-year period (Newman & Purse, 2007). The outcome was the determination of empirical links between specific emotional and social competencies and leadership behaviours, with commonly cited instruments including the Bar-On (2006) and the Bovatis et al. (2000) measures. The final form of the ECR was published based

[1] *Note:* The RBC Future Launch Survey is a proprietary instrument developed by RBC Future Launch and used under license for this study. No peer-reviewed reference is available.

on normative data gathered from over 3,240 business professionals working in leadership and managerial positions from around the world and across varied professional occupations including business, law, medicine, and education (Newman & Purse, 2007; Newman et al., 2015).

The ECR includes 77 items which constitute brief sentences phrased in the first-person singular. The scales show good internal consistency, test-retest reliability, and factor analyses provide reasonable support for the inventory's hypothesized structure (Newman & Purse, 2007; Newman et al., 2015). Each item is scored on a five-point response format designed to indicate the subjective strength of the individual's response as follows: 1. = *very seldom true of me*, 2 = *seldom true of me*, 3 = *sometimes true of me*, 4 = *often true of me*, and 5 = *very often true of me* (Newman et al., 2015). The items are summed to yield scores for each of the 10 competency scales (see Table 3) and a Total Emotional Capital score. The raw scores are automatically tabulated and converted into standard scores based on a mean of 100 and standard deviation of 15. To identify potential response bias and increase interpretation accuracy, the ECR includes a Positive Impact (PI) scale, comprising of seven additional questions that measure positive response bias (Newman & Purse, 2007). Sample items from the PI scale are provided in Appendix A. The ECR is administered online and typically takes approximately 10-12 minutes to complete.

Table 3

Definitions of Emotional Capital Model Competencies

Competency	Definition
Self-Knowing	Recognize how one's feelings and emotions impact on personal opinions, attitudes, and judgements.
Self-Confidence	Respect and like oneself and be confident in personal skills and abilities.
Self-Reliance	Take responsibility for oneself, back one's own judgments and be self-reliant in developing and making significant decisions.
Straightforwardness	Give clear messages and express one's feelings and points of view openly in a straightforward way and be comfortable challenging the views of others while demonstrating respect for their views.
Self-Actualization	Manage one's reserves of emotional energy and maintain an effective level of work/life balance and thrive in setting challenging personal and professional goals.
Relationship Skills	Establish and maintain collaborative and rewarding relationships characterized by positive expectations.
Empathy	Understand other people's thoughts and feelings and create resonant emotional connections with others.
Adaptability	Adapt one's thinking, feelings, and actions in response to changing circumstances and be receptive to new ideas and tolerant of others.
Self-Control	Remain patient and manage one's emotions well; restrain action and remain calm in stressful situations without losing control.
Optimism	Sense opportunities, be resilient, and focus on the possibilities of what can be achieved even in the face of adversity.

Note. Definitions are based on the Emotional Capital Model and reflect key behavioural indicators associated with each competency (Newman & Purse, 2007, p. 20).

Newman et al. (2015) reported an average Cronbach's alpha coefficient of 0.74 across all scales, indicating good internal consistency. The reliability coefficients ranged from 0.60 for *Adaptability* to 0.82 for *Self-Confidence* scale. According to Taber (2019), alpha values greater than .70 are considered acceptable, while values exceeding .60 may be acceptable for scales with a smaller number of items. The average test–retest reliability coefficient after one month was r = .81, demonstrating good reliability of the ECR scales. Age and gender effects varied across the ECR scales. Significant gender differences were observed, with males and females differing for *Self-Reliance*, *Self-Actualization*, *Adaptability* and Total EC scores. Although the differences across the remaining seven scales were minor (less than 2%), females scored significantly higher than males on *Empathy*, with an effect size difference of 3.6%. Age-related effects were significant across all ECR scales, with Total EC scores gradually increasing with age and the highest mean found in the 50 + age group. While most age effects were small (less than 2%), there is an indication that older individuals scored higher than younger ones, except for *Straightforwardness* (2.3%) and the PI scale (2.5%) (Newman et al., 2015).

Career Readiness (RBC Future Launch Survey)

To measure the effectiveness of the program for career readiness and workplace preparedness among participants, a pretest and posttest version of the RBC Future Launch Survey was used in the study. The survey was designed by RBC Future Launch to evaluate the impact of programs in meeting the objectives of preparing young people for the future of work. The survey included 33 items specific to the participant's work experience, education, training, and level of skill in core areas related to workplace preparedness. The survey was targeted at youth aged 15-29 years of age and demographic measures in the survey included age, gender identity, ethnicity, country of origin, disability, sexual orientation, personal financial situation,

and community. The demographic information was not disclosed or shared with program providers. The survey was designed based on in-depth research and validated evaluation scales in consultation with subject-matter experts.

The RBC Future Launch Survey was customized for the program to incorporate additional questions specific to the eight career readiness competencies defined by NACE (2022). These competencies included critical thinking and problem-solving, oral and written communication, teamwork and collaboration, digital technology, leadership, professionalism and work ethic, career management, and global and intercultural fluency (NACE, 2022). Participants self-reported the extent of their agreement or disagreement for each of the eight career readiness competencies (see Table 3 below) using a 5-point Likert scale (1 = *Strongly disagree*, 2 = *Disagree*, 3 = *Neither agree nor disagree*, 4 = *Agree*, and 5 = *Strongly agree, and* 6 = *Prefer not to answer*) for both the pre- and posttest surveys. Like the ECR, the items constituted statements phrased in the first-person singular, designed to indicate the subjective strength of the individual's response based on agreement or disagreement with the competency statements (see Table 4).

Additional survey items related to workplace preparedness, knowledge of the labor market, skills needed to succeed in the workforce, and career-related outcomes were included in the survey. These items were not piloted for the purposes of this research study but were developed by subject matter experts and used for the purposes of the broader RBC Future Launch survey design. The posttest survey included two additional questions related to the effectiveness of the program for workplace preparedness, and the survey response time ranged from 10 minutes at pretest to 12 minutes for the posttest.

Table 4

Career Readiness Competencies

Competency	Definitions
Critical Thinking/Problem Solving	Exercise sound reasoning to analyze issues, make decisions, and overcome problems. The individual is able to obtain, interpret, and use knowledge, facts, and data in this process, and may demonstrate originality and inventiveness.
Oral/Written Communications	Articulate thoughts and ideas clearly and effectively in written and oral forms to persons inside and outside of the organization. The individual has public speaking skills; is able to express ideas to others; and can write/edit memos, letters, and complex technical reports clearly and effectively.
Teamwork/ Collaboration	Build collaborative relationships with colleagues and customers representing diverse cultures, races, ages, genders, religions, lifestyles, and viewpoints. The individual is able to work within a team structure and can negotiate and manage conflict.
Digital Technology	Leverage existing digital technologies ethically and efficiently to solve problems, complete tasks, and accomplish goals. The individual demonstrates effective adaptability to new and emerging technologies.
Leadership	Leverage the strengths of others to achieve common goals and use interpersonal skills to coach and develop others. The individual is able to assess and manage his/her emotions and those of others; use empathetic skills to guide and motivate; and organize, prioritize, and delegate work.
Professionalism/Work Ethic	Demonstrate personal accountability and effective work habits, e.g., punctuality, working productively with others, and time workload management, and understand the impact of non-verbal communication on professional work image. The individual demonstrates integrity and ethical behaviour, acts responsibly with the interests of the larger community in mind, and is able to learn from his/her mistakes.
Career Management	Identify and articulate one's skills, strengths, knowledge, and experiences relevant to the position desired and career goals and identify areas necessary for professional growth. The individual is able to navigate and explore job options, understands, and can take the steps necessary to pursue opportunities, and understands how to self-advocate for opportunities in the workplace.
Global/Intercultural Fluency	Value, respect, and learn from diverse cultures, races, ages, genders, sexual orientations, and religions. Demonstrate openness, inclusiveness, sensitivity, and the ability to interact respectfully with all people and understand individuals' differences.

Note. *Competency definitions are based on the NACE Career Readiness Competency Framework from 2019 (NACE, 2022, p. 29).

The reliability and validity of the RBC Future Launch Survey can be examined only for items related to the eight career readiness competencies, as these constructs have established theoretical and empirical foundations. The report *Development and Validation of the NACE Career Readiness Competencies* (NACE, 2022) outlines the theoretical basis, construct validity, and the iterative refinement of the competencies from 2015 to 2021 through empirical methods, including factor analyses. Results from these analyses demonstrated good model fit and factor loadings, providing empirical support for the behaviours associated with each competency. Collectively, the development and validation efforts underscore the robust construct validity of these competencies. Additionally, substantial correlations among the competencies reflect their applicability in professional workplace contexts. Reliability analyses of pretest survey items for the career readiness competencies yielded an average Cronbach's alpha of 0.70, indicating acceptable internal consistency (Taber, 2019).

It is important to note that the current version of the NACE Career Readiness Competencies was not available at the inception of the pilot program. Consequently, the survey items reflect an earlier iteration of the competencies, specifically the 2019 version (NACE, 2022, p. 21). Key differences between the two iterations of competencies included the following revisions: "Career Management" was broadened to "Career & Self-Development"; "Professionalism/Work Ethic" was reduced to "Professionalism"; "Global/Intercultural Fluency" was renamed "Equity & Inclusion," and lastly, "Digital Technology" was adjusted to "Technology".

Procedures

Ethics approval from the university's Research Ethics Board was not sought at the time of the program as it was not originally intended for research purposes. Furthermore, the program

was integrated into an existing course that was deemed relevant to students' preparation for their co-op work term and future careers. To ensure the protection of data collected during the program, a Privacy Impact Assessment was obtained by the Department of Co-op and Career. Following approval from the thesis committee, a human ethics application was submitted to the UVic's Human Research Ethics Board, which granted approval for the primary researcher to utilize secondary data from the pilot program for the purposes of this study (see Appendix C). Although this research is based on secondary data, measures were implemented to ensure participant consent and to protect the anonymity and confidentiality of participants, as detailed in the subsequent section.

As the program was integrated into a required course, students were not required to sign a written consent form to participate and instead, their consent was implied through their enrollment in the course. In advance of starting the course, students registered in a *Career EQuip* section of the COM 204 course were informed about the program via an introductory video and a formal communication letter outlining the program. The communication outlined the program objectives and structure, notifying students that they could withdraw from the section and register for an alternative section if they chose not to participate in the program.

As a non-credit course, the students' participation and completion of the course did not affect their GPA. Before completing the RBC survey, students were provided with comprehensive information about the program. This included acknowledgement of funding support from the RBC Foundation and RBC Future Launch™, assurances that the survey was anonymous and voluntary, and confirmation that responses would not be used to identify participants. Additional details were outlined in the Letter of Information (see Appendix D) and through a linked website. Similarly, before completing the ECR measures, students were

informed of the purpose of the assessment, potential risks and benefits, confidentiality measures, and the process for receiving their ECR results. Access to the survey links for both the ECR and the RBC Future Launch surveys were restricted to students enrolled in the program and accessible exclusively through the online course site.

Participation in the RBC Future Launch survey was voluntary, with informed consent obtained prior to commencement of the online survey. The survey was designed to ensure anonymity and confidentiality, with no personally identifiable information collected. The only exception occurred in the posttest survey, where students had the option to provide their email addresses to enter a $100 gift card draw. To maintain anonymity while linking pre- and posttest responses, two specific survey questions generated a unique respondent code. The RBC Future Launch survey was hosted online at rbc.forumresearch.com and the program partner (University of Victoria) was responsible for survey distribution.

Data from both measures were compiled on a customized dashboard, accessible solely to the project coordinator. Data was securely stored on servers hosted by a third party that did not route information through U.S.-based servers. The administration of both the ECR and RBC Future Launch surveys adhered to standardized procedures, and responses were computer-scored by the respective test publishers, RocheMartin and RBC Future Launch.

Data Collection

The raw data from each survey was aggregated, exported as a .csv file from the test publisher's website, and stored in a password-protected folder on the co-op network drive at the University of Victoria. The designated project coordinator managed, organized, and monitored the survey data throughout the full duration of the project to ensure consistent oversight. The data was deemed reliable and relevant for investigating the research questions and for measuring

EI and career readiness. The within-subject design involved data collection using a psychometric inventory (the Emotional Capital Report) and a survey (the RBC Future Launch Survey) at both pretest and posttest.

Data Cleaning

The initial phase in data preparation involved assessing the raw survey data for completeness and accuracy to ensure data integrity. The ECR and career readiness survey datasets were consolidated by linking pre- and posttest responses paired using unique identifiers. The ECR dataset comprised 198 responses, with 128 successfully paired (64 matched pairs) using USER RMID and date of birth (DOB) identifiers. Unpaired responses (n = 70) included 59 pretest and 11 posttest responses. Responses from accounts created in 2020, attributed to Cohort 1, were removed (1 pretest and 11 posttest) since Cohort 2 had not yet begun the program. Further analysis revealed 15 Cohort 1 responses mistakenly matched to Cohort 2 (7 pretest, 8 posttest), which were added. The final ECR dataset consisted of 129 pretest and 72 posttest responses, forming 72 matched pairs. The unpaired pretest responses represented non-respondents from Cohort 2, indicating participant attrition.

For the career readiness survey, both cohorts completed the same posttest survey, therefore, delineating between Cohort 1 and 2 responses was a required step in the process. The dataset included 132 pre-test and 139 post-test responses, with unique identifiers (Q27: initials, Q28: birthdate) used to differentiate cohorts and pair responses for Cohort 2. Responses missing identifiers (n = 18) and unmatched pretest responses (n = 6) were removed as cross-referencing with the ECR data illustrated that these students withdrew from the program. The 54 post-test responses without corresponding ECR data at pre or posttest were excluded, and duplicate responses (n = 17) were also removed. Of the 58 non-paired pre-test responses, 57 were

confirmed as Cohort 2. After data cleaning, 58 paired responses remained for the career readiness survey. The cleaned datasets were exported to an Excel file, uploaded to IBM SPSS Statistics (Version 29.0), and saved as an .sav file for further analysis, including normality testing and descriptive statistics. Missing data at posttest and imputation methods are discussed in the subsequent section.

Missing Data

An analysis was conducted to assess the pattern and extent of missing data and to determine an appropriate treatment method. The ECR dataset revealed 42% of values missing at posttest, posing a potential threat to statistical power (Roni & Djajadikerta, 2021). Similarly for the career readiness survey, the dataset revealed that missing data at posttest ranged between 47% to 54.8% across variables. Given that the posttest survey was not a course requirement for students, non-response was assumed to be influenced by participant motivation and study-related factors, and not directly to unobserved posttest outcomes. Analysis in SPSS (Version 29.0) indicated that missingness at posttest was attributed to survey non-completion rather than issues with specific survey items or survey structure, suggesting a Missing Completely at Random (MCAR) mechanism (Little, 1988). A missing value analysis (MVA) was conducted for both measures using Little's (1988) MCAR test. The test for the career readiness measure indicated a non-significant result ($p = 0.942$) and similarly, the test for the ECR also indicated a non-significant result ($p = 0.184$), therefore, we fail to reject the null hypothesis that the missing data are MCAR for both measures. The assumption that the missingness in the data for the career readiness and ECR measures are random and not related to any observed or unobserved variables is supported.

Multiple imputation (MI) was selected as the preferred technique for treating missing data to maintain statistical power, and was selected over case deletion, single imputation, and re-weighting techniques. Since more than 10% of posttest cases contained missing values across all variables of interest, deleting these cases would introduce bias and reduce generalizability (Langkamp et al., 2010). When missing data is below 10%, complete case analysis or trimming methods may be viable, but risk introducing bias if data are not completely at random. Due to the smaller sample size of both datasets and a missing rate greater than 10%, the MI technique was deemed the most suitable technique to minimize bias and retain statistical power.

The procedures in SPSS (Version 29.0) included the analysis of missing data patterns and selecting the most suitable imputation technique. All variables were analysed using a 10% cut-off, and pie charts were generated to visualize missing data distribution. The analysis confirmed no additional patterns emerged beyond general non-responses, ensuring that imputation could proceed without introducing systematic bias.

Multiple Imputation

The MI procedure involved three phases: imputation, analysis, and pooling. Prior to starting the multiple imputation, all variables for the EI dataset were identified which included the 10 ECR scales, the PI scale, and Total EC. For the career readiness survey, only the eight career competencies were identified for the MI procedure. During the imputation phase, the Mersenne Twister method was automatically selected to randomly generate fixed values. All variables with missing values were identified, and five imputations were generated as per default settings. The five imputed datasets were aggregated into a final set of pooled values for analysis.

The next step involved input of the missing values for the posttest measures. The imputation process predicted values based on pretest scores for the same participant and the

available posttest responses. The missing values at posttest were replaced with the imputed value, based on the several iterations of newly generated values. The Monotone method was applied, with constraints defined such that imputed values remained within the observed range – between 70 and 130, as defined by the ECR scales, and a range of 1-5 for the career readiness scales. No values were found to be outside of the defined constraints, and all variables were treated as imputed and predictor variables. The final dataset, post-imputation, was prepared for normality testing and descriptive analysis, with further handling of outliers detailed in subsequent sections.

Data Analysis

The data analysis methods used to test the research questions included statistical tests performed for both the ECR and career readiness data. Descriptive statistics for all variables at both pretest and posttest were calculated, including means, standard deviations (SD), kurtosis, and skewness. The data were further analyzed for outliers, normality, and internal consistency using Cronbach's alpha for each measure. Additionally, graphs were generated in SPSS (Version 29.0) to test assumptions of normality. Frequencies for demographic variables, including age, gender, and nationality, were reported.

Paired Sample T-Test

The paired sample t-test was selected as the statistical method to compare the means of the two conditions (pretest and posttest) for each variable and to test the null hypothesis, which posits that there was no significant increase in the means for the ECR and career readiness scores. To conduct the paired sample t-test, several assumptions of normality were met: the data were continuous; the residuals followed a normal distribution; the observations were independent; no extreme outliers were present; and the differences between the paired values

were normally distributed (bell shaped and symmetric). Using the imputed dataset and interpreting the pooled values only, the paired sample t-test for all variables at pretest and posttest generated descriptive statistics, including the mean, standard deviation (SD), standard error, t statistic, degrees of freedom, and significance levels, as well as calculate effect size (Cohen's D). A primary advantage of a within-subject research design is that it assesses the same individuals under both conditions, thereby controlling subject-specific variables. This approach minimized the influence of individual differences that could otherwise contribute to the variability in scores if different participants were used for each condition. For instance, if different participants had taken the EI assessment at pretest and posttest, some of the variability in the two sets of scores would be attributable to individual differences. By using a paired-sample design, we can more accurately isolate the differences attributable to the test conditions alone (Field, 2018).

Chapter 4: Results

This chapter is divided into several sections. The first section presents the frequencies, reliability, and assumptions of normality for both the EI and career measures. The approach to replacing missing values using multiple imputation is presented next. Third, the descriptive statistics are summarized, and the research questions are addressed using a paired-sample t-test to determine statistical significance. Finally, a post hoc power analysis and effect size are calculated in the last section. Where applicable, inclusion of tabulated results will be provided throughout the chapter.

Frequencies

To assess the sampling adequacy at pretest and posttest, and to determine if the samples were representative of the broader population, the samples for both measures were examined for the distribution of age, gender, and nationality. The demographics for the career readiness measure included 115 participants at pretest and 61 participants at posttest, representing a 47% attrition rate. The demographics at pretest were predominantly male (66%), 18-years of age (67%), and White (82.6%) followed by Chinese (4.3%), South Asian (1.7%), Arab (1%), Southeast Asian (1%), Japanese (1%), other (4.3%), and non-responses (4.3%). The age of participants ranged from 17 to 20 years of age, with a mean age of 18 years (67%). Nationalities represented at posttest were consistent from pretest with most students identifying as White (80.3%) followed by Chinese (6.6%) and South Asian (3.3%). The additional demographics at posttest were male (61.1%) and 18 (42.6%) or 19-years of age (41%). Differences between pretest and posttest for age, gender, and nationality were minimal as the participant sample was identical, therefore, we would assume the demographic characteristics would be relatively stable.

The demographics for the EI measure included 121 participants at pretest and 70 participants at posttest, representing a 42% attrition rate. Similarly for the career readiness measure, demographics at pretest were predominantly male (66%), with a mean age of 20.54 years of age (*SD* = 1.50), and most respondents identified as Canadian (90.1%) followed by Chinese (1.7%), and the remainder equally representative of various nationalities including Asian, American, European, and African. The demographics at posttest were male (60%) and an increased female representation (40%), with a mean age of 20.71 years of age (*SD* = 1.90) and identifying as Canadian (90%). Differences between pretest and posttest for age, gender, and nationality were again minimal as the participant sample was identical, therefore, we would assume the demographic characteristics would be stable.

Across both measures, for pretest and posttest, the gender was predominantly male (61-66%), White or Canadian (82.6-90%), and between 18-20 years of age. Consistent terminology was a challenge as the two surveys differed in coding for age and nationality. There were slightly more students who completed the EI measure compared to the career readiness measure at both pretest and posttest. The participant sample from the EI measure is the most comprehensive of the two datasets and most representative of the original participant sample.

Assumptions: Reliability of Measures and Normality

Reliability

Internal consistency of the two measures was assessed using Cronbach's alpha coefficient at both pretest and posttest. For the career readiness measure, the eight-item scale demonstrated acceptable internal consistency, with a Cronbach's alpha of .69 (standardized $\alpha = .70$) at pretest and .71 (standardized $\alpha = .73$) at posttest. According to Taber (2019), Cronbach's alpha values greater than .70 are generally considered acceptable, with values exceeding .60 deemed

acceptable for scales comprising a small number of items. Item-level reliability analysis at pretest indicated that Cronbach's alpha if an item were deleted values ranged from .62 to .70, suggesting that the removal of any individual item would not meaningfully enhance overall internal consistency. Similarly at posttest, item-level analysis revealed Cronbach's alpha if an item were deleted values ranged from .66 to .71, further indicating that item removal would not meaningfully enhance reliability. Given the minimal difference between the raw and standardized alpha coefficients, and the absence of substantial improvement upon item deletion at both time points, all items were retained for subsequent analyses.

The ECR measure consisted of 11 scales with an average Cronbach's alpha of $\alpha = .83$ at pretest and $\alpha = .89$ at posttest. The internal reliability for the 10 ECR scales and the PI scale were considered very good at both pretest and posttest. The Cronbach alpha coefficients at pretest were high for all scales, ranging from $\alpha = .79$ to $\alpha = .84$, and also high at posttest for all scales ranging from $\alpha = .86$ to $\alpha = .89$. These are consistent with the average Cronbach alpha coefficient of $\alpha = .74$ for the ECR measure (Newman & Purse, 2007).

Normality

To ensure the data met assumptions for descriptive analyses, the data was first examined for normality. Interpretation of normality included significance of the Shapiro-Wilk statistic at a significance p-value of $< .05$ for all variables at both pretest and posttest, and an inspection of the boxplots, histograms, and QQ plots.

For the career readiness data, the Shapiro-Wilk tests indicated that pretest and posttest were not normally distributed, with all eight variables showing statistical significance at $p < .001$.

At pretest ($N = 115$), the Shapiro-Wilk test showed evidence of non-normality ($p < .05$) for *Critical Thinking/Problem Solving* ($W = 0.76$), *Oral/Written Communication* ($W = 0.88$), *Teamwork/Collaboration* ($W = 0.74$), *Digital Technology* ($W = 0.86$), *Leadership* ($W = 0.82$), *Professionalism/Work Ethic* ($W = 0.79$), *Career Management* ($W = 0.83$), and *Global/Intercultural Fluency* ($W = 0.74$). Similarly at posttest ($N = 61$), evidence of non-normality ($p < .05$) was observed for *Critical Thinking/Problem Solving* ($W = 0.60$), *Oral/Written Communication* ($W = 0.83$), *Teamwork/Collaboration* ($W = 0.66$), *Digital Technology* ($W = 0.81$), *Leadership* ($W = 0.80$), *Professionalism/Work Ethic* ($W = 0.71$), *Career Management* ($W = 0.80$), and *Global/Intercultural Fluency* ($W = 0.71$). Despite these findings, visual examination of histograms and Q-Q plots suggested that normality assumptions were met. Research indicates that *t*-tests are generally robust to violations of normality, particularly when sample sizes are sufficiently large (Knief & Forstmeier, 2021).

For the EI data, tests indicated that most normality assumptions were met. At pretest ($N = 121$), the Shapiro-Wilk test revealed non-normality for *Self-Knowing* ($W = 0.97$, $p = 0.012$), *Self-Reliance* ($W = 0.97$, $p = 0.009$), *Straightforwardness* ($W = 0.98$, $p = 0.025$), *Relationship Skills* ($W = 0.98$, $p = 0.025$), *Empathy* ($W = 0.97$, $p = 0.015$), *Self-Control* ($W = 0.97$, $p = 0.019$), *Adaptability* ($W = 0.98$, $p = 0.043$) and *Optimism* ($W = 0.98$, $p = 0.031$). At posttest ($N = 70$), non-normality was found for *Self-Confidence* ($W = 0.96$, $p = .042$) and *Relationship Skills* ($W = 0.95$, $p = .013$). Despite the smaller posttest sample, more variables met normality criteria. Visual inspections of histograms and Q-Q plots confirmed that normality assumptions were not violated. Research suggests that *t*-tests are robust to normality violations, particularly with sufficiently large sample sizes (Knief & Forstmeier, 2021).

Outliers

Upon examining the career readiness data at pretest, boxplot analyses showed 11 outliers across six competencies: *Critical Thinking/Problem Solving*, *Oral/Written Communication*, *Teamwork/Collaboration*, *Leadership*, *Professional/Work Ethic*, and *Global/Intercultural Fluenc*y. At posttest, 15 outliers were detected, the majority occurring for *Career Management* (n = 8), which contrasted the pretest distribution. Descriptive statistics were initially analyzed with these outliers removed, resulting in additional outliers for *Career Management.* To maintain statistical power and consistency across conditions, the outliers were retained except for extreme outliers for *Critical Thinking/Problem Solving* and *Global/Intercultural Fluency*. Extreme outliers included scores which exceeded two standard deviations from the mean and were therefore excluded from subsequent analyses.

For the ECR, outliers were examined using histograms and boxplots in SPSS (Version 29.0), applying the 1.5 interquartile range (IQR) method. Outliers were also identified based on a PI score of 130, as outlined in the literature (Newman & Purse, 2007). At pretest (N = 121), boxplots showed outliers for two of the 10 scales, specifically *Self-Knowing* (n = 4) and *Optimism* (n = 3). The extreme outlier cases were identified and removed (see Appendix D). At posttest, several variables showed outliers, including *Self-Knowing* (n = 8), *Optimism* (n = 8), and *Total EC Score* (n = 8). The descriptive statistics were analyzed with the outliers removed, which resulted in further outliers, given the low power of the sample. The outliers were not removed as reducing the number of cases for the posttest sample would reduce the power of the dataset. Instead of removing the outliers, the values for the outliers were replaced with values equal to the lower whisker or two standard deviations (SD) below the mean (Field, 2018). Problematic outliers were removed at pretest given the removal of a small number of outliers

would not jeopardize the power of the dataset, whereas at posttest, there was a considerable number of outliers, which if removed, could have impacted the power of a small sample.

Missing Data

The presence of missing values has significant implications for the statistical power, confidence, and generalizability of the findings of the research study (Saunders et al., 2006). For both the career readiness and EI datasets, the extent of missing data was significant and exceeded the 5-10% threshold at posttest. The pattern of missing data was confirmed to be randomly distributed across all variables of interest and independent of the participants' EI or career readiness, based on analyses completed in SPSS (Version 29.0). Thus, the assumption is that missing values were not systematically different from the observed values at pretest and posttest, and therefore the conclusion was that the pattern was MCAR. The following section details the approach to analyzing and treating the missing data for career readiness and EI variables.

The rate of missingness for the eight career readiness variables was high, particularly at posttest. The pattern of missing data is consistent with the attrition at posttest, showing incomplete data across all variables and a percentage of missing values ranging from 47 to 48% across all eight variables. To address variables with more than 10% missing values, the multiple imputation technique was selected as the method to estimate and replace the missing data at posttest with the underlying assumption of MCAR. This method was applied to career readiness items with missing values and the imputed variables included the eight career readiness items at pretest and posttest. The results from the multiple imputation treatment are outlined in the next section.

The rate of missingness for the EI variables was also high at posttest with 42.1%. The summary of missing values for the full dataset inclusive of pretest and posttest data showed a

total of 57.9% of cases with complete data. The pattern of missing values illustrates non-missing data at pretest and missing data for all 10 scales at posttest. This pattern is consistent with the incomplete data across all ECR scales at posttest due to attrition. Given the high percentage of missing values, the approach of case analysis, listwise deletion, and single imputation were not deemed appropriate. To estimate and replace the missing data at posttest, the multiple imputation technique was the selected method for treating the missing data with the underlying assumption of MCAR. The dependent variables imputed included the 10 ECR scales, the Positive Impact Scale and Total EC scores from posttest; none of the pretest values were imputed given the non-missing data. The results from the multiple imputation technique are outlined in the next section.

Descriptive Statistics

Prior to running the paired-sample t-test, data suitability was assessed at pretest and posttest. Descriptive statistics, including means, standard deviations, kurtosis, and skewness, were calculated using SPSS (Version 29.0). As detailed previously, assumptions of normality were evaluated through histograms, boxplots, and QQ plots.

Measures of Central Tendency

For career readiness, the number of valid cases at pretest and posttest increased once missing values were replaced by multiple imputation ($N = 115$) and met assumptions of normality. At pretest, a high number of students agreed or strongly agreed with the items, with the highest mean for *Teamwork/Collaboration* ($M = 4.4$, $SD = .62$) and the lowest for *Career Management* ($M = 3.7$, $SD = .74$) and *Oral/Written Communication* ($M = 3.7$, $SD = .91$). Variability was greatest for *Oral/Written Communication* ($M = 3.7$ and $SD = .91$) and *Digital* Technology *(*$M = 3.8$ and $SD = .86$).

At posttest, distributions also met assumptions of normality with the highest mean for

Teamwork/Collaboration (*M* = 4.3, *SD* = .53) and *Critical Thinking/Problem Solving* (*M* = 4.3, *SD* = .43), while the lowest was again for *Career Management* (*M* = 3.8, *SD* = .63). From pre to posttest, mean scores decreased for four competencies (*Leadership, Teamwork/Collaboration, Professionalism/Work Ethic*, and *Global/Intercultural Fluency)* and variability decreased across all items at posttest with standard error of the means ranging from 0.04-0.08 (see Table 5).

Table 5

Paired Sample Statistics for the Career Readiness

Pair	Variable	*M*	*SD*	*SE*
1	Career Management (Pre)	3.7	0.74	0.07
	Career Management (Post)	3.8	0.63	0.06
2	Critical Thinking/Problem Solving (Pre)	4.2	0.59	0.06
	Critical Thinking/Problem Solving (Post)	4.3	0.43	0.04
3	Digital Technology (Pre)	3.8	0.86	0.08
	Digital Technology (Post)	3.9	0.73	0.07
4	Global/Intercultural Fluency (Pre)	4.3	0.76	0.07
	Global/Intercultural Fluency (Post)	4.1	0.75	0.07
5	Leadership (Pre)	4.2	0.75	0.07
	Leadership (Post)	4.0	0.62	0.06
6	Oral/Written Communication (Pre)	3.7	0.91	0.08
	Oral/Written Communication (Post)	4.0	0.67	0.06
7	Professionalism/Work Ethic (Pre)	4.3	0.72	0.07
	Professionalism/Work Ethic (Post)	4.2	0.51	0.05
8	Teamwork/Collaboration (Pre)	4.4	0.62	0.06
	Teamwork/Collaboration (Post)	4.3	0.53	0.05

Note. $N = 115$. *M* = mean; *SD* = standard deviation; SE = standard error. Items were rated on a scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

*$p < 0.05$. **$p < 0.01$.

For EI at pretest (*N* = 121), statistics indicated a normal distribution across all ten EI competencies, the PI scale, and Total EC scores. The highest means were observed for *Optimism* (*M* = 101.36, *SD* = 10.6), *Relationship Skills* (*M* = 101.07, *SD* = 14.47) and *Self-Knowing* (*M* = 100.93, SD = 12.63). The lowest mean statistics included *Adaptability* (*M* = 91.94, *SD* = 11.32) and *Straightforwardness* (*M* = 94.29, *SD* = 12.96).

At posttest, both the raw dataset (*N* = 70) and the dataset after multiple imputation (*N* = 121) showed distributions within acceptable ranges for skewness and kurtosis. Mean statistics increased for most scales including *Self-Actualization, Self-Knowing, Self-Confidence, Self-Reliance, Straightforwardness, Self-Control, Optimism,* and *Adaptability*, while decreases were observed for *Empathy* and *Straightforwardness*. Standard deviations decreased across all competencies after imputation, indicating a tighter cluster around the mean for the posttest results. The highest mean at posttest was found for *Optimism* (*M* = 103.33, *SD* = 10.46), followed by *Self-Confidence* (*M* = 101.63, *SD* = 10.61); and the lowest means were again for *Straightforwardness* (*M* = 94.16, *SD* = 10.63) and *Adaptability* (*M* = 94.33, *SD* = 10.84).

Comparisons from pretest and posttest show an increase in the mean statistic for all ECR scales except for *Straightforwardness* and *Empathy* (see Table 6). Variability decreased for all 10 competencies ranging from lowest for *Optimism* (*SD* = 10.46) at posttest to highest for *Relationship Skills* (*SD* = 14.47) at pretest. The greatest degree of variability was demonstrated in the scores for *Empathy* at pretest (*M* = 100.41 and *SD* = 14.34) and posttest (*M* = 98.0 and *SD* = 13.49). Standard errors ranged from .95 (*Optimism)* to the highest of 1.32 (*Relationship Skills)* and decreased across all competencies from pretest to posttest.

Table 6

Paired Sample Statistics for the Emotional Capital Report (ECR)

Pair	Variable	*M*	*SD*	*SE*
1	Self-Knowing (Pre)	100.9	12.6	1.15
	Self-Knowing (Post)	101.2	12.0	1.09
2	Self-Confidence (Pre)	98.8	13.3	1.21
	Self-Confidence (Post)	101.6	10.6	0.96
3	Self-Reliance (Pre)	95.5	13.1	1.19
	Self-Reliance (Post)	96.5	11.3	1.03
4	Self-Actualization (Pre)	94.9	13.2	1.20
	Self-Actualization (Post)	96.8	11.7	1.07
5	Straightforwardness (Pre)	94.3	13.0	1.18
	Straightforwardness (Post)	94.2	10.6	0.97
6	Relationship Skills (Pre)	101.1	14.5	1.32
	Relationship Skills (Post)	101.2	13.0	1.19
7	Empathy (Pre)	100.4	14.3	1.30
	Empathy (Post)	98.0	13.5	1.23
8	Self-Control (Pre)	96.3	13.5	1.22
	Self-Control (Post)	96.9	11.9	1.08
9	Adaptability (Pre)	91.9	11.3	1.03
	Adaptability (Post)	94.3	10.8	0.99
10	Optimism (Pre)	101.4	10.6	0.96
	Optimism (Post)	103.3	10.5	0.95
11	Positive Impact (Pre)	91.7	12.6	1.14
	Positive Impact (Post)	91.2	9.4	0.85
12	Total EC (Pre)	96.5	10.8	0.98
	Total EC (Post)	98.1	10.1	0.92

Note. $N = 121$. *M* = mean; *SD* = standard deviation; *SE* = standard error of the mean. ECR scale scores range from 70 to 130.

Inferential Statistics: Paired Samples T-Test

The present study hypothesized that participation in an EI training program would lead to gains in student self-reported scores on measures of EI and career readiness. Specifically, it was expected that the training would result in increased scores on all 10 EI competencies (Hypothesis 1a), total EI scores as measured by the ECR (Hypothesis 1b), and all eight career readiness competencies (Hypothesis 2). Paired samples t-tests were conducted to evaluate the statistical significance of mean differences between pretest and posttest conditions. A one-tailed significance test was used, with the *t*-statistic value set at 1.658 based for 114 and 120 degrees of freedom (*df*) at the $\alpha = .05$ level (Field, 2018).

For career readiness, the hypothesis posited that students participating in the EI training program would demonstrate an increase in their scores across the eight career readiness variables; and the null hypothesis stated that there would be no significant increase in these scores among program participants. A paired-sample t-test was conducted to compare students' career readiness scores before and after the training program. The results from the paired samples t-test indicated that student career readiness scores significantly increased from pretest to posttest for two competencies: *Critical Thinking/Problem Solving*, from pretest ($M = 4.2$, $SD = .59$) to posttest ($M = 4.3$, $SD = .43$) conditions; $t(114) = 2.145$, $p = 0.017$, 95% CI [-.228, -.009], with a small effect size ($d = 0.20$) and for *Oral/Written Communication*, at pretest ($M = 3.7$, $SD = .91$) and posttest ($M = 4.0$, $SD = .67$) conditions; $t(114) = 2.638$, $p < 0.005$, 95% CI [-.357, -.051], with a small effect size ($d = 0.25$). Although there was an increase in mean scores at posttest for *Career Management*, it was not statistically significant at the one-tailed significance level and p-value of .05. Therefore, a failure to reject the null hypothesis for this variable as the

training program did not have a statistically significant effect on increasing scores for career management.

The results also indicated statistically significant decreases in scores for *Leadership*, *Global/Intercultural Fluency*, and *Professionalism/Work Ethic* (see Table 7). Specifically, *Leadership* decreased significantly, $t(114) = 2.756$, $p = .003$, 95% CI [0.048, 0.295], with a small effect size ($d = 0.26$), while *Global/Intercultural Fluency* demonstrated the most pronounced decrease, $t(114) = 3.169$, $p < .001$, 95% CI [0.091, 0.393], with a small effect size ($d = 0.30$). The decrease in *Professionalism/Work Ethic* also reached statistical significance, $t(114) = 1.696$, $p = .046$, 95% CI [-0.019, 0.242], with a small effect size ($d = 0.16$). These results were statistically significant for the opposite direction of the hypothesized effect, which predicted increased career readiness scores following the training program. As such, the null hypothesis could not be rejected for these competencies, however, the results would have been significant if the directionality of the hypothesis was reversed.

The remaining two variables, *Digital Technology* and *Teamwork/Collaboration*, also decreased but were not statistically significant, therefore, a failure to reject the null hypothesis for these two competencies.

Table 7

Paired Samples T-Test for Career Readiness

Pair	Variable	*M*	*SD*	SE	95% CI LL	95% CI UL	*t*	*df*	*p*
1	Critical Thinking/ Problem Solving	-0.12	0.59	0.055	-0.228	-0.009	-2.145	114	.017*
2	Oral/Written Communications	-0.20	0.83	0.077	-0.357	-0.051	-2.638	114	.005**
3	Teamwork/Collaboration	0.11	0.86	0.081	-0.050	0.269	1.362	114	.088
4	Digital Technology	-0.07	0.91	0.084	-0.238	0.096	-0.844	114	.200
5	Leadership	0.17	0.67	0.062	0.048	0.295	2.756	114	.003*
6	Professionalism/Work Ethic	0.11	0.70	0.066	-0.019	0.242	1.696	114	.046*
7	Career Management	-0.04	0.86	0.080	-0.194	0.122	-0.446	114	.328
8	Global/Intercultural Fluency	0.24	0.82	0.076	0.091	0.393	3.169	114	<.001**

Note. $N = 115$. *M* = mean; *SD* = standard deviation; *SE* = standard error of the mean. A one-tailed test was used to assess directional differences in ECR results.

Negative mean differences reflect increases in posttest scores relative to pretest. Positive values reflect decreases.

*$p < .05$. **$p < .01$.

To control for family-wise error across the eight paired-sample *t*-tests assessing pretest-posttest differences, the Holm-Bonferroni correction was applied across the multiple comparisons (Holm, 1979). Initial results indicated statistically significant differences in several competencies, including *Leadership, Oral/Written Communication, Critical Thinking/Problem Solving, Professionalism/Work Ethic,* and *Global/Intercultural Fluency*. After adjustment, only *Leadership* ($p = .021$), *Oral/Written Communication* ($p = .030$) and *Global/Intercultural Fluency* ($p = .008$) remained statistically significant at the $\alpha = .05$ level. These findings suggest that while

the program had an effect on multiple competencies, only changes in leadership, communications, and global/intercultural fluency remained robust after accounting for the increased risk of Type 1 error.

For EI, the hypothesis posited that students participating in the EI training program would demonstrate an increase in their EI scores for the 10 competencies and for Total EC, as measured by the ECR. The null hypothesis stated that there would be no significant increase in scores for the 10 EI competencies (null hypothesis 1a) and in Total EC (null hypothesis 1b) among participants.

The paired sample *t*-test was conducted to analyse changes in EI scores based on $t(120) = 1.658$, $p = .05$, with a 95% confidence interval. The results from the paired-samples t-test indicated significant posttest increases in four of the 10 EI scales and therefore, the null hypothesis was rejected for *Self-Confidence*, *Self-Actualization*, *Adaptability,* and *Optimism* ($p < .05$; see Table 8).

A significant increase was found for the scores of *Self-Confidence* at pretest ($M = 98.8$, $SD = 13.27$) and posttest ($M = 101.6$, $SD = 10.61$) conditions; $t(120) = 2.967$, $p = 0.002$, [-4.74, -.945], with a small effect size ($d = 0.27$); *Self-Actualization* at pretest ($M = 94.9$, $SD = 13.2$) and posttest ($M = 96.8$, $SD = 11.7$) conditions; $t(120) = 1.850$, $p = 0.033$, [-3.85, .13], with a small effect size ($d = 0.17$). Similarly for *Adaptability,* a significant increase in pretest ($M = 91.9$, $SD = 11.32$) to posttest ($M = 94.3$, $SD = 10.84$) conditions; $t(120) = 2.334$, $p = 0.011$, [-4.41, -0.36], with a small effect size ($d = 0.21$). Finally, for *Optimism*, there was a statistically significant increase in the scores from pretest ($M = 101.4$, $SD = 10.60$) to posttest ($M = 103.3$, $SD = 10.46$) conditions; $t(120) = 2.268$, $p = 0.013$, [-3.69, -0.25], with a small effect size ($d = 0.20$). These results suggest that a training program can increase EI scores for *Self-Confidence, Self-*

Actualization, Adaptability, and *Optimism*, but with small effect sizes.

Results also indicated a statistically significant decrease in scores for *Empathy* from pretest (M = 100.4, SD = 14.34) to posttest (M = 98.0, SD = 13.49) conditions; $t(120) = 2.236$, $p = 0.014$, [0.28, 4.54], with a small effect size ($d = 0.20$). However, this finding was contradictory to the directionality of the hypothesis and the prediction that the training program would lead to an increase in scores for all EI competencies at posttest. Although the change was statistically significant, the null hypothesis could not be rejected as the directionality of the hypothesis was not supported. This unexpected result may be explained by several potential factors, such as test fatigue, reduced motivation at posttest, response bias, limited intervention effectiveness, or regression to the mean – particularly if pretest scores for this competency were initially high. It is plausible that other confounding variables may have influenced these results with further analysis required to determine the underlying causes.

The remaining five ECR scales—*Self-Knowing, Self-Reliance, Straightforwardness, Relationship Skills*, and *Self-Control*—were not statistically significant at the one-tailed significance level and p-value of .05. Consequently, the null hypothesis (2a) could not be rejected, indicating no statistically significant effect of the training program on these variables.

Finally, the Total EC Score was statistically significant at the one-tailed significance level and p-value of .05. A significant increase was observed from pretest (M = 96.5, SD = 10.8) to posttest (M = 98.1 SD = 10.1); $t(120) = 1.904$, $p = 0.030$, [-3.28, .06], with a small effect size ($d = 0.17$). The null hypothesis (2b) for Total EC is rejected.

Table 8

Paired Samples T-Test for the Emotional Capital Report

Pair	Variable	*M*	*SD*	SE	95% CI LL	95% CI UL	*t*	*df*	*p*
1	Self-Knowing	-0.2	10.5	0.95	-2.10	1.67	-0.229	120	.410
2	Self-Confidence	-2.8	10.5	0.96	-4.74	-0.94	-2.967	120	.002**
3	Self-Reliance	-1.0	11.3	1.03	-3.01	1.05	-0.952	120	.171
4	Self-Actualization	-1.9	11.1	1.01	-3.85	0.13	-1.850	120	.033*
5	Straightforwardness	0.1	9.2	0.84	-1.53	1.79	0.158	120	.437
6	Relationship Skills	-0.2	11.0	1.00	-2.13	1.82	-0.157	120	.438
7	Empathy	2.4	11.9	1.08	0.28	4.54	2.236	120	.014*
8	Self-Control	-0.6	11.0	1.00	-2.58	1.38	-0.602	120	.274
9	Adaptability	-2.4	11.3	1.02	-4.41	-0.36	-2.334	120	.011*
10	Optimism	-2.0	9.6	0.87	-3.69	-0.25	-2.268	120	.013*
11	Positive Impact	0.5	11.0	1.00	-1.51	2.44	0.467	120	.321
12	Total EC	-1.6	9.3	0.85	-3.28	0.06	-1.904	120	.030*

Note. $N = 121$. *M* = mean; *SD* = standard deviation; *SE* = standard error of the mean. A one-tailed test was used to assess directional differences in ECR results.

Negative mean differences reflect increases in posttest scores relative to pretest. Positive values reflect decreases.

*$p < .05$. **$p < .01$.

To control for family-wise error across the 12 paired-sample *t*-tests, the Holm-Bonferroni correction was applied across the multiple comparisons. Initial results indicated that several subscales showed statistically significant changes at the uncorrected level, including *Self-Confidence, Empathy, Adaptability, Optimism,* and *Total Emotional Capital* (EC). After adjustment, only *Self-Confidence* ($p = .024$) remained statistically significant at the $\alpha = .05$ level. These results indicate that although many of the EI subscales trended towards significance, only *Self-Confidence* remained robust after accounting for the increased risk of Type 1 error.

Correlations

Paired samples correlations were conducted to examine the degree of association between pretest and posttest scores for the career readiness competencies (see Table 9). Significant positive correlations were found for all competencies except *Teamwork/Collaboration,* suggesting relative stability in self-ratings over time. Specifically, *Leadership* ($r = .54$, $p < .001$), *Oral/Written Communication* ($r = .48$, $p < .001$), and *Global/Intercultural Fluency* ($r = .41$, $p < .001$) showed the strongest associations, while *Career Management* ($r = .23$, $p = .012$) demonstrated a weaker yet still significant relationship. In contrast, *Teamwork/Collaboration* was the only competency that did not show a statistically significant correlation ($r = -0.13$, $p = .174$), indicating greater variability in individual scores from pretest to posttest.

Table 9

Paired Sample Correlations for Career Readiness

Pair	Variable	*r*	*p* (one-tailed)	*p* (two-tailed)
1	Critical Thinking/Problem Solving	.36	< .001 **	< .001 **
2	Oral/Written Communications	.48	< .001 **	< .001 **
3	Teamwork/Collaboration	–.13	.087	.174
4	Digital Technology	.36	< .001 **	< .001 **
5	Leadership	.54	< .001 **	< .001 **
6	Professionalism/Work Ethic	.38	< .001 **	< .001 **
7	Career Management	.23	.006 *	.012 *
8	Global/Intercultural Fluency	.41	< .001 **	< .001 **

Note. $N = 115$. r = Pearson correlation coefficient.

Significant correlations ($p < .05$) indicate small to strong associations for career readiness competencies from pre to post-test.

*$p < .05$. **$p < .01$.

Paired samples correlations for the EI measure showed significant positive associations for all ECR subscales ($p < .001$), indicating consistency in participants' self-ratings over time (see Table 10). The strongest associations were observed for *Straightforwardness* ($r = .71$) and *Relationship Skills* ($r = .69$)**,** while the weakest correlations were found for *Positive Impact* ($r = .54$), and *Adaptability* ($r = .49$), suggesting slightly greater variability for these scales. Overall, the results demonstrate consistent measurement for ECR competencies over time.

Table 10

Paired Sample Correlations for Emotional Capital Report (ECR)

Pair	Variable	*r*	*p* (one-tailed)	*p* (two-tailed)
1	Self-Knowing	.64	< .001 **	< .001 **
2	Self-Confidence	.63	< .001 **	< .001 **
3	Self-Reliance	.58	< .001 **	< .001 **
4	Self-Actualization	.61	< .001 **	< .001 **
5	Straightforwardness	.71	< .001 **	< .001 **
6	Relationship Skills	.69	< .001 **	< .001 **
7	Empathy	.64	< .001 **	< .001 **
8	Self-Control	.63	< .001 **	< .001 **
9	Adaptability	.49	< .001 **	< .001 **
10	Optimism	.59	< .001 **	< .001 **
11	Positive Impact	.54	< .001 **	< .001 **
12	Total EC	.61	< .001 **	< .001 **

Note. $N = 121$. r = Pearson correlation coefficient. Significant correlations ($p < .05$)

All correlations were statistically significant at $p < .01$ and suggested moderate pre–post relationships for ECR competencies.

*$p < .05$. **$p < .01$.

Correlation Coefficients

Exploratory inter-scale correlations were calculated to examine relationships among the career readiness variables at pretest and posttest (see Appendix F, Tables 1 and 2). Overall, most of the competencies were positively associated with *Critical Thinking/Problem Solving,* showing positive correlations with all variables, suggesting its versatility with all career readiness variables. Stronger associations were observed between *Career Management* and *Professionalism/Work Ethic* ($r = .55$, $p < .01$) at pretest, and between *Teamwork/Collaboration* and *Global/Intercultural Fluency* at posttest. These correlations provide contextual information but were not central to the research questions.

Exploratory analyses of inter-scale correlations were also examined for EI variables at pretest and posttest (see Appendix F, Tables 3 and 4). The EI subscales were moderately to strongly associated, with *Self-Knowing* and *Self-Confidence* showing consistent positive associations across variables. Inter-scale correlations with Total EC were highest for *Self-Actualization* ($r = .65$) and lowest with *Empathy* ($r = .47$). The average correlation of all 10 scales with the Positive Impact Scale was below the average cited in the psychometric properties of the ECR (.31), indicating that socially desirable bias had little influence on responses for the scales.

Power Analysis

A power analysis and desired effect sizes were not calculated for the purposes of this study given the secondary research approach. A power analysis was not completed a priori to the data collection, and therefore, the effect size was determined based on the sample size ($n = 121$). The calculation of Cohen's *d* was determined at a p-value of 0.05 and a power level of 0.80.

Chapter 5: Discussion

This study examines the effectiveness of an EI training program designed to increase EI and career readiness competencies for undergraduate students at a Canadian university It builds on existing research demonstrating the impact of training programs on EI development, the positive outcomes associated with higher EI levels, and insights from the broader social-emotional learning literature on fostering social and emotional competencies in educational settings. This chapter summarizes the study's findings, situates them within the existing literature, and explains their significance. It explores both theoretical and practical implications, acknowledges limitations of the study, and concludes with directions for future research.

The Effectiveness of an EI Training Program on EI

The present study hypothesized that participation in an EI training program would improve student scores on both EI and career readiness measures. More specifically, the research questions stated that the training program would result in increased posttest scores across all 10 EI competencies (Hypothesis 1a), the Total EC score (Hypothesis 1b), and all eight career readiness competencies (Hypothesis 2). Findings partially supported these hypotheses.

The present study provides evidence that the training program was effective at increasing specific competencies within the Emotional Capital Model (Newman, 2007). Statistically significant gains were observed in several EI subscales, including *Self-Actualization*, *Self-Confidence*, *Adaptability*, and *Optimism*. Additionally, posttest scores for *Total EC* were significantly higher, indicating a general improvement in overall EI. However, the remaining subscales of *Self-Reliance, Self-Knowing, Relationship Skills,* and *Self-Control* did not exhibit significant changes, despite increases in mean scores. Notably, *Empathy* significantly decreased at posttest, and *Straightforwardness* also demonstrated a small, non-significant decline.

These findings align partially with prior research on the efficacy of EI training programs to increase both overall and specific EI competencies (Nelis et al., 2009). The observed gains in *Self-Confidence* are consistent with earlier findings linking EI training to increased self-efficacy and resilience (Groves et al., 2008). However, the decrease observed for *Empathy* and *Straightforwardness,* and the non-significant increases in other competencies (i.e., *Self-Reliance, Self-Knowing, Relationship Skills, and Self-Control)* suggest potential limits to the program's efficacy and raise important questions for future research, particularly in understanding the factors that influence the effectiveness of EI training to develop specific emotional and social competencies.

The significant decrease in *Empathy* scores may be partially attributed to broader sociocultural stressors associated with the COVID-19 pandemic. The *Empathy* subscale in the ECR assesses the degree to which individuals are attuned to the emotions and experiences of others and captures facets such as emotional sensitivity, active listening, and the tendency to consider other people's feelings and circumstances when making decisions (Newman & Purse, 2007). During the study period, students were adjusting from online to in-person learning, uncertainty about their futures, and evolving health restrictions and mandates. These external factors, unique to the period in which the study was conducted, may have constrained opportunities to develop this competency or diminished participants' emotional capacity to engage empathetically.

To further assess the robustness of the findings, the Holm-Bonferroni correction was applied to adjust for family-wise error across the multiple paired-sample comparisons. After the correction, only *Self-Confidence* remained statistically significant at the $\alpha = .05$ level. Given the conceptual relatedness of the EI subscales, this correction was necessary to reduce the risk of

Type 1 error. The retained significance of *Self-Confidence* suggests that the program may have been most effective in fostering students' overall sense of self-worth, belief in their skills, abilities, and judgments, and the confidence to manage future challenges (Newman & Purse, 2007).

Further analysis of inter-scale correlations revealed additional insights into the structure and responsiveness of the EI competencies. At pretest, a strong correlation was observed between *Self-Actualization* and *Optimism* ($r = .58$, $p < .01$), consistent with but slightly lower than the correlation reported by Newman et al. (2015; $r = .72$, $p < .001$). This relationship was further reinforced at posttest ($r = .73$, $p < .01$), aligning with the significant posttest gains for both competencies and supporting their interconnectedness.

Moderate correlations were also observed between *Relationship Skills* and *Empathy* at both pretest ($r = .57$, $p < .01$) and posttest ($r = .63$, $p < .01$), consistent with prior research ($r = .65$, $p < .001$) by Newman et al. (2015). However, despite this consistent association, *Empathy* significantly decreased at posttest whereas *Relationship Skills* showed a small, non-significant increase. These divergent posttest outcomes, despite their moderate correlations, suggest that the development of these competencies may be influenced by specific training components or contextual factors that contribute disproportionately to their development.

Additionally, the correlation between *Empathy* and *Straightforwardness* was weaker than expected. While Newman and Purse (2007) previously reported a modest correlation ($r = .29$, $p < .001$), the present study indicated non-significant correlations at both pretest ($r = .03$) and posttest ($r = .16$). These discrepancies may stem from contextual factors, such as the influence of the COVID-19 pandemic, demographic variations (e.g., age and gender), or training program design, all which may have influenced competency development in this sample.

Consistent with earlier research by Newman and Purse (2007), Total EC exhibited moderate to strong correlations with all 10 EI competencies, particularly with *Self-Actualization* ($r = .72$, $p < .01$) and *Optimism* ($r = .72$, $p < .01$) at pretest and with *Relationship Skills* ($r = .75$, $p < .01$) at posttest. These results suggest that these competencies may serve as key drivers of Total EC in this sample, particularly at the outset and following targeted EI training programs. In contrast, *Empathy* showed the weakest correlation with *Total EC* ($r = .47$, $p < .01$), a finding also observed in the ECR ($r = .57$, $p < .001$; Newman & Purse, 2007). This result suggests that *Empathy* may be less linked to overall EI scores or develop at different rates compared to other competencies.

Overall, these findings contribute to current knowledge by reinforcing established relationships while challenging others, particularly in the context of changes introduced by an EI training program. The observed inter-scale correlations provide insight into how competencies are linked and the interdependent nature of EI competencies. Future research should explore the mechanisms underlying these relationships and assess how contextual variables and specific program elements contribute to the development of EI competencies.

Gender and Age Effects

The findings of the study also suggest possible effects of gender and age on EI scores, consistent with documented psychometric properties of the ECR (Newman & Purse, 2007; Newman et al., 2015). Since most participants were 20 years old or younger at the time of the pretest data collection, all standard scores were adjusted based on normative data that account for age and gender. The ECR's normative sample ($N = 3,240$) is derived from a large sample of professionals and follows a negatively skewed yet otherwise normal distribution (Newman & Purse, 2007).

Prior research indicates statistically significant gender differences across all ECR subscales, with four scales exhibiting size differences exceeding 2%. For instance, females scored 3.9% higher on *Empathy* and 2% higher on *Relationship Skills* compared to males. Conversely, males scored 3.8% higher than females on *Self-Confidence* and 2.3% higher on *Self-Control* (Newman & Purse, 2007). These gender-specific tendencies may have been reflected in the study's findings, such that the higher proportion of male participants in the study (61%) contributed to the higher reported scores for *Self-Confidence* and lower scores for *Empathy*.

Studies of the ECR also reveal statistically significant, albeit small, age effects (≤ 2%) across all ECR subscales, except for *Straightforwardness* (2.3%) and the *Positive Impact Scale* (2.5%) (Newman et al., 2015). Earlier research by Newman and Purse (2007) identified moderate age effects for *Self-Reliance* (23.5%), *Adaptability* (19.3%), *Optimism* (16.0%), and *Self-Knowing* (14.6%). These age-related effects reflect the variability of the ECR scales and Total EC, with the lowest scores found for individuals under 20 years of age (Newman & Purse, 2007). In line with these findings, the current study revealed the lowest scores for *Adaptability,* yet on the contrary, *Optimism* yielded the highest score among the ECR scales. These results challenge the established significance of age effects for *Optimism* amongst young adults and suggest the need for further investigation into how these competencies may manifest differently in this age group. Altogether, these patterns underscore the importance of considering demographic variables, such as gender and age, in the interpretation of EI outcomes and implications for practice.

Finally, one of the key components of the ECR is the PI scale, a key component of the ECR, was used in this study to assess for socially desirable response patterns. As a validity measure, the PI scale contributes to evaluating the reliability of self-reported data. In the present

study, the average correlation between the PIC scale and the other ECR subscales ranged from (r = .14) at pretest to (r = .27) at posttest, both of which fall below the average correlation (r = .31) reported in the ECR technical manual (Newman & Purse, 2007) in the ECR technical manual. These findings suggest that socially desirable response tendencies did not significantly influence participants' responses, thereby supporting the validity of the EI data collected.

The Effectiveness of an EI Training Program on Career Readiness

The present study also examined whether participation in an EI training program would increase students' career readiness as defined by eight core competencies. Initial results indicated statistically significant changes in self-reported scores across several competencies, including increases in *Oral/Written Communication* and *CriticalThinking/ProblemSolving,* and decreases in *Leadership, Global/Intercultural Fluency*, and *Professionalism/WorkEthic.* Only two remained statistically significant after applying the Holm-Bonferroni correction; an increase in *Oral/Written Communication* and a decrease in *Leadership.* This adjustment was necessary given the conceptual overlap among the career readiness competencies and to reduce the risk of a Type 1 error.

The retained significance for *Oral/Written Communication* suggests that the training program was most effective in enhancing students perceived communication abilities, a foundational competency for succeeding in both academic and workplace contexts. This is consistent with previous findings that identify communication as a top-rate competency by both students and employers (NACE, 2021). The observed gains in this competency may reflect the integration of communication-focused activities, such as reflective assignments and feedback mechanisms embedded in the program design.

Conversely, the statistically significant decrease in *Leadership* raises important considerations about the intervention's design and delivery. One explanation is that the program led students to develop greater self-awareness, resulting in modest post-intervention self-assessments of their leadership capacity. Alternatively, the result may indicate a gap in the program's effectiveness to develop this competency. The lack of sustained significance across the other competencies may be the result of smaller effect sizes, variability in individual responses, or limitations in the measurement cadence, particularly given the lag between program delivery and posttest data collection.

Although some competencies such as *Career Management* and *Critical Thinking / Problem Solving* exhibited positive trends and an increase in mean scores at posttest, this change did not meet statistical significance after correction. The modest effect sizes observed suggest that while the program may have influenced development in these areas, the magnitude of change was not sufficient to yield consistent statistical significance.

There are several factors that may have contributed to these unexpected findings. The program may not have been effectively designed to develop the career readiness competencies as intended, and further, the measures may not have adequately assessed gains related to career outcomes. Moreover, it is possible that valid and reliable measures with stronger empirical foundations as outlined in the literature review, such as career decision self-efficacy, career adaptability, and self-perceived employability, may have been more suitable to the intervention. It is also plausible that regression to the mean may have influenced the observed decreases in scores at posttest, particularly if pretest scores were high. Additionally, survey fatigue and reduced motivation at posttest could have contributed to lower scores, as evidenced in part by participant attrition. Consideration of other confounding factors such as concurrent experiential

learning opportunities (e.g., internships and courses) may have also influenced skills development independently of the intervention.

The findings also revealed inter-scale correlations between career readiness competencies; however, the absence of validity and reliability assessments of the measure limits the interpretation of these relationships. Despite this limitation, the results provide insight into the relationship between competencies with moderate positive correlations observed for *CareerManagement* and *Professionalism/WorkEthic* ($r = .55$, $p < .01$), suggesting that a strong sense of professionalism may be associated with greater engagement in career development planning. Similarly, a moderate correlation was observed between *Global/Intercultural Fluency* and *Teamwork/Collaboration* ($r = .52$, $p < .01$), signalling the importance of cultural awareness for effective teamwork and collaboration. In contrast, weaker correlations were found between *Teamwork/Collaboration* and *Oral/Written Communication* ($r = .03$, $p > .05$) and between *Professionalism/WorkEthic* and *Oral/Written Communication* ($r = .06$, $p > .05$.), suggesting that these competencies may develop independently and require tailored interventions.

The paired-sample correlations demonstrated weak to moderate stability across time, ranging from *Career Management* ($r = .23$, $p = .006$) to *Leadership* ($r = .54$, $p < .001$). All variables showed significance (p-value < 0.05), with the exception *Teamwork/Collaboration.* These findings may suggest that while some competencies cluster, others develop independently, reinforcing the complexity of career readiness competency development. This has important implications for the design and implementation of interventions that recognize the differentiated nature of career readiness competencies. Further research is needed to assess the validity and reliability of these measures, while establishing stronger empirical evidence for the interdependent relationship of the career readiness competencies.

While many post-secondary institutions in the United States have adopted the NACE career readiness competencies into their career development frameworks and curricula, there is limited research examining the applicability and validity of these defined competencies in Canadian contexts. Since the conclusion of this study, the NACE Competency Assessment Tool was introduced, offering a robust and rubric-based assessment of all eight career readiness competencies. The assessment uses a rubric format to examine proficiency of each competency across four developmental levels (Emerging Knowledge to Advanced Application), and research evidence confirms the reliability and content validity of the tool (Kahn, 2024). future research could explore the validation of the NACE competency assessment tool in a Canadian post-secondary context and explore the relationship between EI and career readiness. Moreover, expanding assessment methods beyond self-reports to include employer, career practitioner, and peer evaluation, could mitigate biases and enhance the robustness of this tool to assess proficiency of the eight NACE career readiness competencies.

Despite the limited support for the program's effectiveness in enhancing all career readiness competencies, the study makes a meaningful contribution to a limited area of research. It advances understanding of how targeted EI training programs may influence career and employability-related outcomes and highlights the complexity of designing evidence-based programs that effectively integrate EI and career readiness.

Determinants of Effective EI Training Programs

Research substantiates that EI can be developed and increased through theory-driven EI programs, and that EI has positive effects for career outcomes including career adaptability (Hamzah et al., 2021; Parmentier et al., 2019; 2022) and career decision-making self-efficacy (Di Fabio & Saklofske, 2014; Duru & Söner, 2024; Hamzah et al., 2021; Udayar et al. 2018).

Additionally, EI development has implications for academic success, resilience, and as a resource to promote hedonic and eudaimonic well-being (Di Fabio & Kenny, 2019). For EI training programs to be effective, the research outlines necessary practices for content, implementation, and context. The results from this study integrate and contrast with the research, which will be detailed in the following section.

Content Design

Overall, the program adhered to characteristics of successful EI training programs including the use of an empirically validated model, a psychometrically valid measure of EI, pre- and post-training measurements, and effective course design principles.

The EI training program content for this study was designed with a strong theoretical foundation underpinned by the Emotional Capital Model (Newman, 2007) and the ECR as the psychometric instrument to measure EI. Likewise, the career readiness measure adhered to a validated and reliable measure of career readiness competencies (NACE, 2022); however, the validity and reliability of the scale items were not measured as part of this study. While EI and career readiness were measured separately, no overlap occurred, as each survey measured distinct constructs.

The program aligned with guidance from Brown and Ryan-Krane (2000) on key components for effective career courses, such as incorporating group discussions, presentations, and support for career decision-making, with assignments integrated into the course structure. Furthermore, the program employed both experiential (e.g., skills practice, reflective practice, discussing emotions, case studies) and theoretical (e.g., lectures, group discussions, videos, readings) approaches to learning throughout the 12-week course. The program was delivered synchronously with in-person class sessions and asynchronously with learning resources

accessible via a Learning Management System (LMS). Course components were not evaluated for their contribution to the program's overall efficacy; therefore, it was not possible to disentangle the effectiveness of specific components for the development of EI and career readiness competencies within this study.

Implementation

Several steps were taken to increase aspects of effective program implementation, such as duration and fidelity. Cipriano et al. (2023) outlined best practices for duration of EI training programs, indicating that the average program consists of 6.09 sessions each lasting 2.57 hours, and that the majority of these programs (92.86%) had a fixed schedule with clearly defined individual goals. Brown and Ryan Krane (2000) further emphasized that the number and duration of sessions are critical to the effectiveness of career courses, suggesting five sessions may be optimal for group career intervention programs, as effect sizes tended to decrease with the increased number of sessions.

The training content for this study consisted of 4 distinct sessions each lasting 1.5 hours, delivered over four weeks for a total of 6 hours of synchronous learning. The total time dedicated to active classroom learning was below the average number of sessions and hours focused on EI as outlined by Cipriano et al. (2023) and Brown and Ryan-Krane (2000). However, the subsequent course units did incorporate EI content and in addition, students completed asynchronous learning through pre- and post-class activities and assignments that were relevant to EI. It could be assumed that the learning content over the entire course may have met this criterion. Additionally, the relatively short duration of the training program may have limited the program’s ability to produce robust training effects, and it is plausible that a longer training program could have resulted in a more robust training effect. Specifically, while the program

may have enhanced declarative knowledge (e.g. understanding emotions), it is unknown whether the program was sufficient at enhancing procedural knowledge at a deeper level (e.g. applying EI skills). This suggests that longer, repetitive, and more integrated EI training may be more effective to fully translate EI knowledge into practice.

Drawing from SEL research, effective programs and instruction reflect the characteristics represented by the acronym SAFE: sequenced (connected and coordinated activities to foster skills development), active (active forms of learning to help students to master new skills), focused (activities that clearly emphasize developing personal and social skills), and explicit (targeting specific social and emotional skills) (Durlak et al., 2011). The program in this study followed the SAFE criteria through the pedagogical approaches inherent in the course design and delivery. Although the course was facilitated by two separate instructors, the curriculum (i.e., lesson plans, in-class presentations, assignments, rubrics, and web-based learning content) was consistent across all three sections and for all participants in the program. Examples of connected and coordinated activities which fostered skill development included asynchronous and synchronous learning approaches (i.e., pre-learning activities, in-class learning activities such as group discussions, case studies, and quizzes). In addition, the students applied their learning through reflective assignments and participation in experiential activities such as mock interviews with employers. Future research on EI training could explicitly incorporate the SAFE criteria into the program design to monitor fidelity more effectively across these characteristics. Additionally, monitoring implementation was found to be a limitation in more recent meta-analyses of USB SEL programs (Cipriano et al., 2023); therefore, future studies on EI program design could prioritize the assessment of monitoring implementation to expand understanding of implementation indicators.

According to Cipriano et al. (2023), when reporting results, programs should be specific about the sequence and content delivered so that future analysis can disentangle the contributions of sequence and content. The sequence and content were outlined as part of the program design and evaluated at regular intervals throughout the course, and through a course evaluation survey. The course evaluation survey results were excluded from this study; however, represent a valuable data source for further analysis of the program's sequence and content.

Finally, instructors completed training and achieved certification as facilitators of the ECR. This approach aligns with best practice, suggesting that outside facilitators are less effective, even when assessed as competent by teachers and administrators (Voith et al., 2020). Additionally, research emphasizes the critical role of instructors in modeling EI and SEL within the classroom and broader school climate (Brackett & Rivers, 2014; Brackett et al., 2019). The impact of having trained and certified instructors extended beyond the course, as students were paired with their instructor throughout the program for individualized job search guidance and skills coaching during their co-op work term.

Environment/Context

The program content was adapted for the context of the post-secondary context in several ways. The measures were selected for university business students – including the RBC Future Launch survey designed for youth, and the ECR, selected for its emphasis on business and leadership. The NACE career readiness competencies were incorporated into the RBC Future Launch survey as a specific measure of career readiness developed and defined for post-secondary students. The program design was also adapted for the COVID-19 pandemic as a hybrid learning model incorporating synchronous and asynchronous methodologies. Student engagement and participation in learning activities were driven by course requirements such as

graded assignments, participation in experiential events such as a mock interview clinic, and completion of classroom activities. Program artifacts included two personalized ECR reports, and a final reflective assignment and action plan focused on EI and career development.

The measured outcomes included EI and career readiness, with a 10-month interval between the pretest and posttest measures. This duration is significantly higher than the average found in Hodzic et al. (2018) of 2.06 months but comparable to the upper range of 9 months. To evaluate the stability of program effects, a follow-up test could have been conducted to determine whether students had internalized and maintained their gains; however, no such follow-up measurements were implemented. Furthermore, the posttest was administered at the conclusion of the entire program rather than at the end of the course. Conducting a posttest at the end of the course (approximately three months) instead of at the end of the full program (10 months) could have provided insights into immediate gains and the stability of effects. It is possible that the program's impact might have been more pronounced if the posttest had been conducted earlier, at the completion of the course.

Nwachukwu et al. (2020) found that individuals under the age of 25 reported the highest levels of stress, anxiety, and depression during the COVID-19 lockdown, a critical contextual factor given the participants in this study were between 18 and 21 years old. Participants in this study completed their first year of university during the COVID-19 lockdown, which necessitated a shift to online education due to the closure of the university from March 2020 to September 2021. The lockdown period also involved navigating evolving health and safety measures, social distancing mandates, and other restrictions, all of which added layers of complexity to students' educational experiences. Despite these challenges, Gaeota et al. (2021) noted that while anxiety, boredom, and frustration were commonly reported during the

lockdown, students also experienced positive emotions such as gratitude, joy, and hope. These positive emotions may align with *Optimism*, a key EI competency. Furthermore, the coping strategies employed by students, which involved facing and reassessing their situations, may have been indicative of *Adaptability*, another important EI competency.

Data collection for this study took place between September 2021 and July 2022, a period marked by the Fourth wave (Delta variant) and Fifth wave (Omicron variant) of the COVID-19 pandemic (Statistics Canada, 2022). During this time, students transitioned from fully online learning to a traditional educational environment that included both synchronous and asynchronous components. This transition required students to draw on self-directed learning and apply adaptive self-regulation skills developed during their year of online learning. Additionally, students were adjusting to university and campus life for the first time, a period known to be stressful for many students (Garg et al., 2016). The overlapping transitions experienced by these students—moving from online to in-person learning, navigating their first year on campus, and coping with the ongoing pandemic—may have contributed to the impact of the EI training program on both EI competencies and career readiness outcomes. These factors, and others such as how COVID-19 stress relates to EI and career outcomes, were not investigated in this study; however, these factors represent key areas for future research.

Limitations

Despite the significance of the findings, there are several areas which are important to consider for future EI training programs. Aspects of this study which may impact the generalizability of the findings include the research design, measurements, and generalizability of the findings.

Research Design

The quasi-experimental research design limits the generalizability of the findings and precludes causal inferences (Creswell & Creswell, 2018). A key limitation is the absence of a control group, a feature of this study that limits the ability to make specific claims about the effectiveness of the intervention. While the intervention was designed specifically for second-year students and randomization was achieved through course registration, the control group did not complete the EI and career readiness measures, therefore the criteria for a true control group was not met. Restricting the sample to a single program of undergraduate study (commerce) was by design but does challenge the applicability of the findings to other academic disciplines, which may have yielded different outcomes. Consequently, future replication of this study across diverse academic programs could build knowledge on the generalizability of the findings.

The secondary research design of the study posed a challenge in that it was not strategically designed to maximize response rates and therefore, attrition was high at posttest for both the EI (42%) and career readiness (48%) measures. Attrition could be due to the research design such that pretest measures were integrated into the course curriculum whereas the posttest measures were not required deliverables during the student's co-op work term. The high attrition at posttest can be attributed to several possible factors, including survey fatigue, lack of incentive, withdrawal from the program, or refusal to answer – factors which align with other studies on EI interventions with post-secondary populations (Schoeps et al. 2020). An additional factor could include ineffective communication about the measures and timelines, which may have further contributed to low compliance rates. The high attrition at posttest also indicates an attrition bias, and as a result, missingness in the posttest data. To address the missing values and to maintain power in the sample at posttest, the multiple imputation technique was selected for

both the EI and career readiness measures.

A priori power analysis could have been used to estimate the required sample size for the study; however, given the secondary research nature of the study, this was not possible. The sample size at pretest was adequate ($N = 125$); however, with attrition at posttest, the sample size decreased across both measures, thus threatening statistical power. The higher the statistical power, the lower the probability of a Type II error. The low statistical power of the study for both EI and career readiness leads to a larger risk that the conclusions of the significance of the results are invalid (Creswell & Creswell, 2018). Therefore, to minimize the risks associated with low statistical power at posttest such as Type II errors, it was important to maintain the power of the sample. This was achieved through the multiple imputation technique to address missingness in the posttest data.

The predominantly-male sample (66%) may have limited the generalizability of the findings, particularly given normative data with the ECR has shown significant gender effects for EI competencies of *Empathy*, where females tend to score higher, and *Self-Confidence* (3.8%), *Optimism* (1.6%), and *Straightforwardness*, where males tend to score higher (Newman & Purse, 2007). Gender differences in the results were not analyzed, and therefore, interpretation of gender effects could not be examined in relation to other studies. The age of participants in the sample ranged from 18 to 20 years of age and most participants self-identified as White (80.3%) or Canadian (90%). The accessed sample was consistent with the target population such that most students enrolled in their second year of university studies are within this age range. It is unknown whether the ethnicity of the sample is consistent with the target population as demographic data for the business program was not available at the time of the study. Future studies could examine age effects, validity of EI measures for ethnically diverse participants, and

the effectiveness of EI training programs across different academic programs. Such studies would enhance knowledge and understanding the impact of EI training programs when controlling for age, gender, ethnicity, and degree programs for post-secondary students.

Measurements

The ECR measure was selected given its focus on business and leadership, and in alignment with the specific population of business students. Self-report measures of EI, such as the ECR, may introduce risks of positive response and social desirability biases, which can threaten the validity of the measures (Fowler, 2014). As indicated by Mayer et al. (2008), the assessment of EI programs should not rely on self-report measures, which are often limited by accurate self-awareness, and should include performance assessments which estimate an individual's maximal knowledge and aptitude in responding to stimuli or solving emotion-related problems (Mayer et al., 2002). Interestingly, the EI competency of *Self-Knowing*, defined by Newman and Purse (2007) as a self-awareness of emotions and the capacity to recognize the impact of emotions on behaviour, was significantly higher at posttest. It does seem that students are aware of some gains in their own EI following the training, and that EI training can provide an immediate, perceived benefit. Replication of this study could incorporate multi-method assessments, such as the 360 performance assessment of the ECR which can be completed by peers and supervisors, to validate self-report measures of EI. Additionally, replication of this study could expand beyond the use of a mixed-model of EI to include performance-based (e.g. MSCEIT; Mayer et al. 2002) and trait-based (e.g. TEIQue; Petrides, 2009) measures to determine the predictive validity of EI for career readiness outcomes and the effectiveness of such training programs for increasing EI.

For the career readiness measure, the RBC Future Launch Survey was internally designed

with subject matter experts and developed to assess career-related outcomes for youth participating in programs aimed at increasing career readiness skills and behaviours. Although the survey was customized to include items specific to the eight NACE career readiness competencies, which have been validated by NACE (2022), the items have not been validated in empirical research with Canadian post-secondary populations nor in the context of an EI training program. Future research could investigate the validation of the NACE career readiness competencies and specifically, the recently launched NACE Competency Assessment Tool (Kahn, 2024), with post-secondary populations. Given the robust empirical research supporting the positive effects of EI on other career outcomes such as career adaptability and career decision self-efficacy, future research could build on the outcomes of this study by examining the effectiveness of an EI intervention using valid and reliable career readiness measures.

The measurement cadence posed a limitation as posttest data collection occurred at the end of the pilot program rather than immediately after the course. In the initial pilot design, additional programming was planned between the end of the course and the pilot's conclusion. However, additional programming beyond the course was limited due to student scheduling constraints and other priorities during the intensive spring and summer terms, including heavy academic workloads and a summer co-op work term. A more effective measurement cadence would have included a posttest measure immediately after the course, with another follow-up measure at 6- or 12-months posttest. Future research could replicate the study with the integration of a posttest measure into the course curriculum and a follow-up measure to examine stability effects after program completion.

Generalizability of Findings

Finally, there are limitations to both the internal and external validity of the effects. The internal validity of the observed effects could be due to other confounding factors beyond the intervention, particularly given the non-experimental and secondary research design. Sensitivity analyses were not performed to examine the plausibility of other variables or factors which influenced the development of EI and career readiness competencies. Further, the external validity of the results can only be generalised to other settings that mirror the demographics of participants and the environmental context of the intervention. Although effect sizes ranged from small to moderate, further replication and validation with other samples are necessary to strengthen external validity and confirm robustness of these results. Replicating the study with post-secondary populations in other parts of the world, comprising diverse areas of study and cultural backgrounds, would be an avenue for future research. The context of a COVID-19 learning environment is also an important consideration when interpreting the findings of this study and caution is important when generalizing findings to a post-COVID-19 context.

Implications for Practice

The findings from this study have important implications for post-secondary education with the potential for EI training programs to positively influence a wide array of outcomes for students. Existing literature highlights positive outcomes such as career adaptability, career decision-making self-efficacy, and as evidenced in this study, increased EI, and career readiness competencies. Although this study focused on second-year students, research by Garg et al. (2016) indicates that targeted EI training to first-year students can positively impact university adjustment. This is further supported by this study's findings, which reveal that EI training significantly enhances *Self-Actualization, Adaptability, Optimism*, and *Self-Confidence—*

competencies that are essential not only for successful university adjustment, but also for the transition to future workplace environments which necessitate such competencies. Moreover, targeted interventions could be particularly beneficial for students with lower levels of stress management, optimism, and mood as these factors are linked to social and personal adjustment (Garg et al., 2016).

Given the growing emphasis on teamwork and collaboration in both academic and workplace contexts, EI training programs aimed at developing EI and leadership competencies are especially valuable for business schools preparing students for management positions (Thompson et al., 2020). To develop career-ready graduates, universities must implement training programs and curricula that emphasize career readiness competencies essential for future career success. Specifically, fostering competencies such as career management, communication, digital technology, critical thinking, and problem-solving align closely with the demands of modern workplace environments (NACE, 2022) and are cited as among the top skills for 2025 (World Economic Forum, 2020).

Finally, this study adhered to best practices for EI program design and implementation, thus supporting its effectiveness. These practices included trained instructors to deliver EI-related curricula, evidence-based measures used at pre- and posttest, and program structures aligned with recommended duration and dosage. The findings from this study underscored the impact of integrating EI training programs into undergraduate curricula. Through the integration of self-reported measures of EI and career readiness, and curriculum enhancements, participants were able to develop essential EI and career readiness competencies applicable to both academic and workplace contexts. Beyond skill development, the program facilitated the creation of personalized, goal-oriented career action plans, empowering students to apply their competencies

in work-integrated learning environments. By integrating skill development and learning of career readiness frameworks earlier in the post-secondary experience, students are positioned to capitalize on work-integrated learning by directly applying career and EI-related knowledge in a workplace setting.

Future Directions

As the first study to examine an EI training program for post-secondary students using the ECR and NACE career readiness competencies, this research contributes to existing knowledge and highlights the need for further research on the effectiveness of EI training programs with post-secondary students. To deepen understanding of the effects of EI training on EI and career outcomes across diverse contexts, future research could benefit from the areas of focus outlined below.

First, randomized and experimental research designs are needed to explore causal pathways between EI and career outcomes, and to provide stronger evidence and understanding of their relationship. Further, longitudinal studies should be conducted to assess effects of EI training interventions and to determine the stability of these effects over time. Research examining EI training programs and career outcomes for post-secondary audiences could have implications for students engaging in work-integrated learning during their degree programs and for future job performance in the workplace. Examining both the proximal and distal outcomes of EI training programs would support understanding of the impact of an EI training program on graduate employability and job performance.

Second, future research on EI training could examine the use of psychometric tools, such as the ECR, with career-related measures which are more firmly established in the literature and tailored to post-secondary students. Investigation of specific ECR competencies in relation to

career outcomes such as career adaptability, self-perceived employability, career decision-making self-efficacy, and well-being, along with mediating factors, could provide deeper insights into the relationship between the ECR and broader career outcomes beyond career readiness. For instance, given the strong evidence for EI and career decision-making self-efficacy in fostering career adaptability (Hamzah et al. 2021), examining this relationship with a measure such as the ECR and with post-secondary audiences would further elicit understanding of this relationship.

Third, to build on the current literature of the effectiveness of EI training programs, comparing results for both ability- and trait-based measures of EI could elicit understanding of the impact of programs across different measures of EI, and further, on specific sub-facets of EI. Similarly, career readiness could be examined through frameworks such as the updated NACE Competency Assessment Tool to evaluate the relationship between EI and specific career readiness competencies. This study did not assess the relationship between EI and the NACE career readiness competencies, which presents a gap in the literature that could be strengthened through future research.

Finally, the design and structure of EI training programs could incorporate established models of EI, such as Mayer and Salovey's (1997) four-branch model, to identify specific components that support the development and translation of EI knowledge to skill acquisition. Building on recommendations by Cipriano et al. (2023), future research should also focus on the efficacy of EI training for educator outcomes, including the effects on educator EI, for program efficacy, and the impact on student EI.

Conclusion

This study demonstrates the effectiveness of an EI training program for enhancing EI and career readiness competencies among university students in the year following the COVID-19

lockdown. The findings from this secondary, quasi-experimental study indicate statistically significant increases in ECR scores for *Self-Actualization, Self-Confidence, Adaptability, Optimism* and *Total Emotional Capital* at posttest. While other EI variables showed non-significant increases in mean scores, *Straightforwardness* decreased, and *Empathy* exhibited a significant decrease. The program's emphasis on career readiness contributed to significant improvements in *Oral/Written Communication* and *Critical Thinking/Problem Solving,* and a non-significant increase in *Career Management*. After applying the Holm-Bonferroni correction for both measures, significant gains remained for increases in *Self-Confidence* and *Oral/Written Communication*. These results underscore the value of programs which integrate EI and career readiness competencies into university curricula through evidence-based, experiential learning approaches.

By examining an EI training program which incorporates both the ECR and NACE career readiness competencies within a Canadian post-secondary context, this study provides meaningful contributions to the literature. The findings illuminate the need for future research to explore the impact of EI training programs across diverse academic disciplines and examine longitudinal outcomes related to the stability effects of such programs on EI and other career-related outcomes. Programs like *Career EQuip* have the propensity to support university students in developing the requisite skills to successfully enter and adapt to a dynamic world of work that awaits them at graduation. Expanding this research will further clarify the role of EI training in preparing students for their future work and highlight the critical role of post-secondary institutions in prioritizing EI training as a curricular requirement.

References

Alessandri, G., Vecchione, M., & Caprara, G. V. (2015). Assessment of regulatory emotional self-efficacy beliefs: A review of the status of the art and some suggestions to move the field forward. *Journal of Psychoeducational Assessment, 33*(1), 24–32. doi.org/10.1177/0734282914550382

Bar-On, R. (1997). *The emotional intelligence inventory (EQ-i): Technical manual.* Multi-Health Systems.

Bar-On, R. (2000). Emotional and social intelligence: Insights from the Emotional Quotient Inventory. In Bar-On, R., & Parker, J. D. A. (Eds), *The handbook of emotional intelligence: Theory, development, assessment, and application at home, school, and in the workplace* (1st ed., pp. 363-388). Jossey-Bass/Wiley.

Bar-On, R. (2006). The Bar-On model of emotional-social intelligence (ESI). *Psicothema*, *18.*

BC COVID-19 Modelling Group. (2022, August 17). *COVID model projections August 17, 2022*. BC COVID-19 Modelling Group. https://bccovid19group.ca/projections

Bedi, S., Roberts, J., & Duff, C. (2024). "There's a certain loneliness of being in a space that does not relate to you": The resilience and mental health experiences of international students during the COVID-19 pandemic. *Sage Open, 14*(4). doi.org/10.1177/21582440241300522

Betz, N. E., Klein, K. L., & Taylor, K. M. (1996). Evaluation of a short form of the Career Decision-Making Self-Efficacy Scale. *Journal of Career Assessment, 4*(1), 47–57. doi.org/10.1177/106907279600400103

Boekaerts, M., & Pekrun, R. (2016). Emotions and emotion regulation in academic settings. In L.Corno & E.M. Anderman (Eds.), *Handbook of educational psychology* (3rd ed., pp. 76-90). Routledge/Taylor & Francis Group. doi.org/10.4324/9781315688244

Boyatzis, R. E., Goleman, D., & Rhee, K. (2000). Clustering competence in emotional intelligence: Insights from the Emotional Competence Inventory (ECI). In Bar-On, R., & Parker, J. D. A. (Eds), *The handbook of emotional intelligence: theory, development, assessment, and application at home, school, and in the workplace* (1st ed., pp. 343-362). Jossey-Bass/Wiley.

Brackett, M. A., & Mayer, J. D. (2003). Convergent, discriminant, and incremental validity of competing measures of emotional intelligence. *Personality and Social Psychology Bulletin, 29*(9), 1147–1158. doi.org/10.1177/0146167203254596

Brackett, M. A., & Rivers, S. E. (2014). Transforming students' lives with social and emotional learning. In R. Pekrun & L. Linnenbrink-Garcia (Eds.), *International handbook of emotions in education* (pp. 368–388). Routledge.

Brackett, M. A., Bailey, C. S., Hoffmann, J. D., & Simmons, D. N. (2019). RULER: A theory-driven, systemic approach to social, emotional, and academic learning. *Educational Psychologist, 54*(3), 144-161. doi.org/10.1080/00461520.2019.1614447

Brackett, M. A., Rivers, S. E., & Salovey, P. (2011). Emotional intelligence: Implications for personal, social, academic, and workplace success. *Social and Personality Psychology Compass, 5*(1), 88-103. doi.org/10.1111/j.1751-9004.2010.00334

Brackett, M. A., Rivers, S. E., Shiffman, S., Lerner, N., & Salovey, P. (2006). Relating emotional abilities to social functioning: A comparison of self-report and performance

measures of emotional intelligence. *Journal of Personality and Social Psychology, 91*(4), 780 –795. doi.org/10.1037/0022-3514.91.4.780

Brasseur, S., Grégoire, J., Bourdu, R., & Mikolajczak, M. (2013). The profile of emotional competence (PEC): Development and validation of a self-reported measure that fits dimensions of emotional competence theory. *PLoS One, 8*(5), 1–8. doi.org/10.1371/journal.pone.0062635

Brown, S. D., & Ryan Krane, N. E. (2000). Four (or five) sessions and a cloud of dust: Old assumptions and new observations about career counseling. In S. D. Brown, & R. W. Lent (Eds.), *Handbook of counseling psychology* (3rd ed., pp. 740–766). Wiley.

Cerutti, J., Burt, K. B., Moeller, R. W., & Seehuus, M. (2024). Declines in social-emotional skills in college students during the COVID-19 pandemic. *Frontiers in Psychology*, *15*, 1392058. doi.org/10.3389/fpsyg.2024.1392058

Challenges, and New Directions. In: Keefer, K., Parker, J., Saklofske, D. (eds) Emotional Intelligence in Education. The Springer Series on Human Exceptionality. Springer, Cham. https://doi.org/10.1007/978-3-319-90633-1_2

Cipriano, C., Strambler, M. J., Naples, L., Ha, C., Kirk, M. A., Wood, M. E., and Durlak, J. (2023, February 2). Stage 2 report: The state of the evidence for social and emotional learning: A contemporary meta-analysis of universal school-based SEL interventions. *Child Development.* doi.org/10.31219/osf.io/mk35u

Coetzee, M., & Harry, N. (2014). Emotional intelligence as a predictor of employees' career adaptability. *Journal of Vocational Behavior, 84*(1), 90-97. doi.org/10.1016/j.jvb.2013.09.001

Collaborative for Academic, Social, and Emotional Learning. (2020). *CASEL SEL framework: Social and emotional learning.* casel.org/wp-content/uploads/2020/12/CASEL-SEL-Framework-11.2020.pdf

Cooper, A., & Petrides, K. V. (2010). A psychometric analysis of the Trait Emotional Intelligence Questionnaire–Short Form (TEIQue–SF) using item response theory. *Journal of Personality Assessment, 93*, 449–457. doi.org/10.1080/00223891.2010.497426

Corcoran, R. P., Cheung, A. C. K., Kim, E., & Xie, C. (2018). Effective universal school-based social and emotional learning programs for improving academic achievement: A systematic review and meta-analysis of 50 years of research. *Educational Research Review*, *25,* 56-72. doi.org/10.1016/j.edurev.2017.12.001

Cram, B., Doherty-Restrepo, J. L., Perez, K., Creeden, M., & Charite, M. (2023). Closing the gap between students' career readiness and employers' expectations: An innovative competency-based approach. *International Journal of Innovative Teaching and Learning in Higher Education, 4*(1), 1–14. doi.org/10.4018/IJITLHE.327348

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches.* (Fifth edition.). SAGE.

Dacre Pool, L., & Qualter, P. (2012). Improving emotional intelligence and emotional self-efficacy through a teaching intervention for university students. *Learning and Individual Differences*, *22*(3), 306–312. https://doi.org/10.1016/j.lindif.2012.01.010

Di Fabio, A. (2020). From career development to career management: A positive prevention perspective. In J. A. Athanasou & H. N. Perera (Eds.), *International handbook of career guidance* (2nd ed., pp. 209-240). Springer International Publishing AG. doi.org/10.1007/978-3-030-25153-6_10

Di Fabio, A., & Blustein, D. L. (2010). Emotional intelligence and decisional conflict styles: Some empirical evidence among Italian high school students. *Journal of Career Assessment*, *18*(1), 71–81. doi.org/10.1177/1069072709350904

Di Fabio, A., & Kenny, M. E. (2011). Promoting emotional intelligence and career decision making among Italian high school students. *Journal of Career Assessment, 19*(1), 21-34. doi.org/10.1177/1069072710382530

Di Fabio, A., & Kenny, M. E. (2012). Emotional intelligence and perceived social support among Italian high school students. *Journal of Career Development, 39*(5), 461-475. doi.org/10.1177/0894845311421005

Di Fabio, A., & Kenny, M. E. (2015). The contributions of emotional intelligence and social support for adaptive career progress among Italian youth. *Journal of Career Development, 42*(1), 48-59. doi.org/10.1177/0894845314533420

Di Fabio, A., & Saklofske, D. H. (2014). Comparing ability and self-report trait emotional intelligence, fluid intelligence, and personality traits in career decision. *Personality and Individual Differences, 64*, 174–178. doi.org/10.1016/j.paid.2014.02.024

Di Fabio, A., & Saklofske, D.H. (2018). Emotional intelligence and youth career readiness. In K. Keefer, J. Parker, & D. Saklofske (Eds.), *Emotional intelligence in education: Integrating research with practice* (pp. 353-375). Spring International Publishing AG. doi.org/10.1007/978-3-319-90633-1

Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, *49*(1), 71-75.

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D. W., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and

negative feelings. *Social Indicators Research*, *97*, 143-156. doi.org/10.1007/s11205-009-9493-y

Digman, J. M., & Inouye, J. (1986). Further specification of the five robust factors of personality. *Journal of Personality and Social Psychology*, *50*(1), 116. doi.org/10.1037/0022-3514.50.1.116

Durlak, J. A. (2016). Programme implementation in social and emotional learning: basic issues and research findings. *Cambridge Journal of Education, 46*(3), 333–345. doi.org/10.1080/0305764X.2016.1142504

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, *82*(1), 405–432. doi.org/10.1111/j.1467-8624.2010.01564

Duru, H., & Söner, O. (2024). The relationship between career decision-making self-efficacy and emotional intelligence, career optimism, locus of control and proactive personality: A meta-analysis study. *Canadian Journal of Career Development*, *23*(1), 6–32. doi.org/10.53379/cjcd.2024.376

Field, A.P. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). SAGE.

Fiori, M., & Vesely-Maillefer, A.K. (2018). Emotional Intelligence as an Ability: Theory, Challenges, and New Directions. In: Keefer, K., Parker, J., Saklofske, D. (eds) *Emotional Intelligence in Education.* The Springer Series on Human Exceptionality. Springer, Cham. doi.org/10.1007/978-3-319-90633-1_2

Fowler Jr, F. J. (2013). *Survey research methods*. SAGE.

Gaeta, M. L., Gaeta, L., & Rodriguez, M. D. S. (2021). The impact of COVID-19 home confinement on Mexican university students: Emotions, coping strategies, and self-regulated learning. *Frontiers in Psychology, 12,* 642823-642823. doi.org/10.3389/fpsyg.2021.642823

Garg, R., Levin, E., & Tremblay, L. (2016). Emotional intelligence: Impact on post-secondary academic achievement. *Social Psychology of Education*, *19*(3), 627–642. doi.org/10.1007/s11218-016-9338-x

Gati, I., Krausz, M., & Osipow, S. H. (1996). A taxonomy of difficulties in career decision making. *Journal of Counseling Psychology, 43*, 510–526. doi.org/10.1037/0022-0167.43.4.510

Goleman, D. (1995). *Emotional intelligence: Why it can matter more than IQ*. Bantam Books.

Groves, K. S., Pat McEnrue, M., & Shen, W. (2008). Developing and measuring the emotional intelligence of leaders. *The Journal of Management Development*, *27*(2), 225–250. doi.org/10.1108/02621710810849353

Hamzah, S. R., Kai Le, K., & Musa, S. N. S. (2021). The mediating role of career decision self-efficacy on the relationship of career emotional intelligence and self-esteem with career adaptability among university students. *International Journal of Adolescence and Youth, 26*(1), 83-93. doi.org/10.1080/02673843.2021.1886952

Hirschi, A., & Valero, D. (2015). Career adaptability profiles and their relationship to adaptivity and adapting. *Journal of Vocational Behavior*, *88*, 220–229. doi.org/10.1016/j.jvb.2015.03.010

Hodzic, S., Scharfen, J., Ripoll, P., Holling, H., & Zenasni, F. (2018). How efficient are emotional intelligence trainings: A meta-analysis. *Emotion Review*, *10(2)*, 138–148. doi.org/10.1177/1754073917708613

Hoffman, J.D., Ivcevic, Z., & Brackett, M.A. (2018). Building emotionally intelligent schools: From preschool to high school and beyond. In K. Keefer, J. Parker, & D. Saklofske (Eds.), *Emotional intelligence in education: Integrating research with practice* (pp. 173-198). Spring International Publishing. doi.org/10.1007/978-3-319-90633-1

Holm, S. (1979). A simple sequentially rejective multiple test procedure. *Scandinavian Journal of Statistics, 6*(2), 65–70.

Island Health. (2021, December 13). *Update to COVID-19 cases associated with University of Victoria* [News release]. Island Health. Retrieved from Island Health website.

Jagers, R. J., Rivas-Drake, D., & Williams, B. (2019). Transformative social and emotional learning (SEL): Toward SEL in service of educational equity and excellence. *Educational Psychologist*, *54*(3), 162–184. doi-org.ezproxy.library.uvic.ca/10.1080/00461520.2019.1623032

Johnston, C. S., Luciano, E. C., Maggiori, C., Ruch, W., & Rossier, J. (2013). Validation of the German version of the Career Adapt-Abilities Scale and its relation to orientations to happiness and work stress. *Journal of Vocational Behavior*, *83*(3), 295–304. doi.org/10.1016/j.jvb.2013.06.002

Joseph, D. L., & Newman, D. A. (2010). Emotional intelligence: An integrative meta-analysis and cascading model. *Journal of Applied Psychology, 95*(1), 54–78. doi.org/10.1037/a0017286

Kahn, J. (November 24, 2024). *The validity of the NACE competency assessment tool.* National Association of Colleges and Employers. https://www.naceweb.org/career-readiness/competencies/the-validity-of-the-nace-competency-assessment-tool

Keefer, K. V., Parker, J. D. A., & Saklofske, D. H. (2018). Three decades of emotional intelligence research: Perennial issues, emerging trends, and lessons learned in education: Introduction to emotional intelligence in education. In K. Keefer, J. Parker, & D. Saklofske (Eds.), *Emotional intelligence in education: Integrating research with practice* (1st ed. pp. 1-23). Spring International Publishing AG. doi.org/10.1007/978-3-319-90633-1

Khazaei, M., Holder, M. D., Sirois, F. M., Oades, L. G., & Gendron, B. (2021). Development and assessment of the Personal Emotional Capital Questionnaire for Adults. *International Journal of Environmental Research and Public Health*, *18*(4), 1856. doi.org/10.3390/ijerph18041856

Kirk, B. A., Schutte, N. S., & Hine, D. W. (2008). Development and preliminary validation of an emotional self-efficacy scale. *Personality and Individual Differences, 45*, 432–436. doi.org/10.1016/j.paid.2008.06.010

Knief, U., & Forstmeier, W. (2021). Violating the normality assumption may be the lesser of two evils. *Behavior Research Methods*, *53*(6), 2576–2590. doi.org/10.3758/s13428-021-01587-5

Langkamp, D. L., Lehman, A., & Lemeshow, S. (2010). Techniques for handling missing data in secondary analyses of large surveys. *Academic Pediatrics*, *10*(3), 205–210. doi.org/10.1016/j.acap.2010.01.005

Little, R. J. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association, 83*(404), 1198-1202

Little, R. J. A., & Rubin, D. B. (2020). *Statistical analysis with missing data* (Third edition.). Wiley.

Locke, E. A. (2005). Why emotional intelligence is an invalid concept. *Journal of Organizational Behavior, 26*(4), 425–431. doi.org/10.1002/job.318

MacCann, C., Jiang, Y., Brown, L. E. R., Double, K. S., Bucich, M., & Minbashian, A. (2020). Emotional intelligence predicts academic performance: A meta-analysis. *Psychological Bulletin*, *146*(2), 150–186. doi.org/10.1037/bul0000219

Mattingly, V., & Kraiger, K. (2019). Can emotional intelligence be trained? A meta-analytical investigation. *Human Resource Management Review*, *29*(2), 140–155. doi.org/10.1016/j.hrmr.2018.03.002

Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. Sluyter (Eds.), *Emotional development and emotional intelligence: Implications for educators* (pp. 3–31). Basic Books.

Mayer, J. D., Caruso, D. R., & Salovey, P. (2016). The ability model of emotional intelligence: Principles and updates. *Emotion Review, 8*(4), 290 – 300. doi.org/10.1177/1754073916639667

Mayer, J. D., Roberts, R. D., & Barsade, S. G. (2008). Human abilities: Emotional intelligence. *Annual Review of Psychology*, *59*(1), 507–536. doi.org/10.1146/annurev.psych.59.103006.093646

Mayer, J. D., Salovey, P., & Caruso, D. R. (2002). Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT) user's manual. Multi-Health Systems.

Mayer, J. D., Salovey, P., & Caruso, D. R. (2004). Emotional intelligence: Theory, findings, and implications. *Psychological Inquiry, 15*(3), 197–215. doi.org/10.1207/s15327965pli1503_02

Miao, C., Humphrey, R. H., & Qian, S. (2017). A meta-analysis of emotional intelligence and work attitudes. *Journal of Occupational and Organizational Psychology*, *90*(2), 177–202. doi.org/10.1111/joop.12167

National Association of Colleges and Employers. (2022). *Development and validation of the NACE Career Readiness Competencies.* https://www.naceweb.org/uploadedFiles/files/2022/resources/2022-nace-career-readiness-development-and-validation.pdf

National Association of Colleges and Employers. (n.d.). *NACE Competency Assessment Tool Info Sheet with empirical results for content validity, usability, reliability, and discriminant validity*. https://naceweb.org/docs/default-source/default-document-library/2024/resources/nace-competency-assessment-tool-technical-document.pdf?sfvrsn=61d35359_3

Nelis, D., Kotsou, I., Quoidbach, J., Hansenne, M., Weytens, F., Dupuis, P., Mikolajczak, M., & Phelps, E. A. (2011). Increasing emotional competence improves psychological and physical well-being, social relationships, and employability. *Emotion*, *11*(2), 354–366. doi.org/10.1037/a0021554

Nelis, D., Quoidbach, J., Mikolajczak, M., & Hansenne, M. (2009). Increasing emotional intelligence: (How) is it possible? *Personality and Individual Differences*, *47*(1), 36–41. doi.org/10.1016/j.paid.2009.01.046

Newman, M. L. (2007). *Emotional Capitalists - The New Leaders: Essential Strategies for Building Your Emotional Intelligence and Leadership Success.* John Wiley & Sons.

Newman, M. L., & Purse, J. A. (2007). Emotional Capital Report — Technical Manual. Melbourne, Australia: RocheMartin Institute.

Newman, M., & Smith, K. H. (2014). Emotional intelligence and emotional labour: A comparison study using the emotional capital report (ECR). *Education and Society*, *32*(1), 41-62. doi.org/10.7459/es/32.1.04

Newman, M., Purse, J., & Broderick, J. (2009). Emotional intelligence and leadership: Psychometric properties of the Emotional Capital Report (ECR).

Newman, M., Purse, J., Smith, K., & Broderick, J. (2015). Assessing emotional intelligence in leaders and organisations: Reliability and validity of the emotional capital report (ECR). *Australasian Journal of Organisational Psychology, 8*. doi.org/10.1017/orp.2015.5

Nwachukwu, I., Nkire, N., Shalaby, R., Hrabok, M., Vuong, W., Gusnowski, A., Surood, S., Urichuk, L., Greenshaw, A. J., & Agyapong, V. I. O. (2020). COVID-19 pandemic: Age-related differences in measures of stress, anxiety, and depression in Canada. *International Journal of Environmental Research and Public Health*, *17*(17), 6366-. doi.org/10.3390/ijerph17176366

O'Boyle Jr, E. H., Humphrey, R. H., Pollack, J. M., Hawver, T. H., & Story, P. A. (2011). The relation between emotional intelligence and job performance: A meta-analysis. *Journal of Organizational Behavior, 32(*5), 788-818. doi.org/10.1002/job.714

Parmentier, M., Pirsoul, T., & Nils, F. (2019). Examining the impact of emotional intelligence on career adaptability: A two-wave cross-lagged study. *Personality and Individual Differences, 151*, 109446. doi.org/10.1016/j.paid.2019.05.052

Parmentier, M., Pirsoul, T., & Nils, F. (2022). Career adaptability profiles and their relations with emotional and decision-making correlates among Belgian undergraduate students. *Journal of Career Development*, *49*(4), 934–950. doi.org/10.1177/08948453211005553

Petrides, K. V. (2009). Psychometric properties of the Trait Emotional Intelligence Questionnaire (TEIQue). In C. Stough, D. H. Saklofske, & J. D. A. Parker (Eds.), *Assessing emotional intelligence: Theory, research, and applications* (pp. 85–101). Springer-Verlag. doi.org/10.1007/978-0-387-88370-0

Petrides, K. V., Pita, R., & Kokkinaki, F. (2007). The location of trait emotional intelligence in personality factor space. *The British Journal of Psychology, 98*(2), 273–289. doi.org/10.1348/000712606X120618

Porfeli, E. J., & Savickas, M. L. (2012). Career Adapt-Abilities Scale-USA Form: Psychometric properties and relation to vocational identity. *Journal of Vocational Behavior*, *80*(3), 748–753. doi.org/10.1016/j.jvb.2012.01.009

Poropat, A. E. (2009). A meta-analysis of the five-factor model of personality and academic performance. *Psychological Bulletin*, *135*(2), 322–338. https://doi.org/10.1037/a0014996

Rivers, S. E., Brackett, M. A., Reyes, M. R., Elbertson, N. A., & Salovey, P. (2013). Improving the social and emotional climate of classrooms: A clustered randomized controlled trial testing the RULER approach. *Prevention Science*, *14*(1), 77–87. doi.org/10.1007/s11121-012-0305-2

Roni, S. M., & Djajadikerta, H. G. (2021). *Data analysis with SPSS for survey-based research*. Springer.

Rothwell, A., & Arnold, J. (2007). Self-perceived employability: development and validation of a scale. *Personnel Review, 36*(1), 23–41. doi.org/10.1108/00483480710716704

Rothwell, A., Jewell, S., & Hardie, M. (2009). Self-perceived employability: Investigating the responses of post-graduate students. *Journal of Vocational Behavior, 75*, 152–161. http://dx.doi.org/10.1016/j.jvb.2009.05.002.

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition and Personality*, *9*(3), 185–211. doi.org/10.2190/DUGG-P24E-52WK-6CDG

Salovey, P., Mayer, J. D., Goldman, S. L., Turvey, C., & Palfai, T. P. (1995). Emotional attention, clarity, and repair: Exploring emotional intelligence using the Trait Meta-Mood Scale. In J. W. Pennebaker (Ed.), *Emotion, disclosure, & health* (pp. 125–154). American Psychological Association. https://doi.org/10.1037/10182-006

Santos, A., Wang, W., & Lewis, J. (2018). Emotional intelligence and career decision-making difficulties: The mediating role of career decision self-efficacy. *Journal of Vocational Behavior, 107*, 295-309. doi.org/10.1016/j.jvb.2018.05.008

Saunders, J. A., Morrow-Howell, N., Spitznagel, E., Doré, P., Proctor, E. K., & Pescarino, R. (2006). Imputing missing data: A comparison of methods for social work researchers. *Social work research*, *30*(1), 19-31.

Savickas, M. L. (2013). Career construction theory and practice. In S. D. Brown & R. W. Lent (Eds.). *Career development and counseling: Putting theory and research to work* (2nd ed., pp.147-186). Wiley.

Schoeps, K., de la Barrera, U., & Montoya-Castilla, I. (2020). Impact of emotional development intervention program on subjective well-being of university students. *Higher Education, 79*(4), 711-729. doi.org/10.1007/s10734-019-00433-0

Schulte, M. J., Ree, M. J., & Carretta, T. R. (2004). Emotional intelligence: Not much more than *g* and personality. *Personality and Individual Differences*, *37*(5), 1059-1068. doi.org/10.1016/j.paid.2003.11.014

Schutte, N. S., Malouff, J. M., Hall, L. E., Haggerty, D. J., Cooper, J. T., Golden, C. J., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences, 25*(2), 167–177. doi.org/10.1016/S0191-8869(98)00001-4

Shuman, V., & Scherer, K. R. (2014). Concepts and structures of emotions. In R. Pekrun & L. Linnenbrink-Garcia (Eds.), *International handbook of emotions in education* (pp. 13–35). Routledge. doi.org/10.4324/9780203148211

Statistics Canada. (2022). *Canada at a glance, 2022*. https://www150.statcan.gc.ca/n1/pub/12-581-x/12-581-x2022001-eng.htm

Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, *48*, 1273-1296.

Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting positive youth development through school-based social and emotional learning interventions: A Meta-analysis of follow-up effects. *Child Development, 88*(4), 1156-1171. doi.org/10.1111/cdev.12864

Thompson, C. L., Kuah, A. T. H., Foong, R., & Ng, E. S. (2020). The development of emotional intelligence, self-efficacy, and locus of control in Master of Business Administration Students. *Human Resource Development Quarterly, 31*(1), 113-131. doi.org/10.1002/hrdq.21375

Thorndike, E. L. (1920). Intelligence and its uses, *Harper's Magazine,* 140, pp. 227-235.

Udayar, S., Fiori, M., Thalmayer, A. G., & Rossier, J. (2018). Investigating the link between trait emotional intelligence, career indecision, and self-perceived employability: The role of career adaptability. *Personality and Individual Differences, 135*, 7-12. doi.org/10.1016/j.paid.2018.06.046

University of Victoria (2023, November 3). *Communicable Disease Prevention Plan.* University of Victoria: Occupational Health, Safety and Environment. https://www.uvic.ca/ohse/assets/docs/cdprevention/uvic-communicable-disease-prevention-plan.pdf

Van der Linden, D., Pekaar, K. A., Bakker, A. B., Schermer, J. A., Vernon, P. A., Dunkel, C. S., & Petrides, K. V. (2017). Overlap between the general factor of personality and emotional intelligence: A meta-analysis. *Psychological Bulletin, 143*(1), 36-52. doi.org/10.1037/bul0000078

Vesely-Maillefer, A. K. (2015). *Striving for teaching success: Enhancing emotional intelligence in pre-service teachers* (Doctoral Dissertation, The University of Western Ontario).

Vesely-Maillefer, A.K., & Saklofske, D.H. (2018). Emotional intelligence and the next generation of teachers. In K. Keefer, J. Parker, & D. Saklofske (Eds.), *Emotional intelligence in education: Integrating research with practice* (pp. 377-402). Spring International Publishing AG. doi.org/10.1007/978-3-319-90633-1

Voith, L. A., Yoon, S., Topitzes, J., & Brondino, M. J. (2020). A feasibility study of a school-based social emotional learning program: Informing program development and evaluation. *Child & Adolescent Social Work Journal*, *37*(3), 329–342. doi.org/10.1007/s10560-019-00634-7

World Economic Forum. (2020). *The future of jobs report 2020.* https://www.weforum.org/publications/the-future-of-jobs-report-2020/

Yalcin, B. M., Karahan, T. F., Ozcelik, M., & Igde, F. A. (2008). Effects of an emotional intelligence program on the quality of life and well-being of patients with type 2 diabetes mellitus. *The Diabetes Educator*, *34*(6), 1013–1024. doi.org/10.1177/0145721708327303

Appendices

Appendix A

EI Measure (Emotional Capital Report)

Positive Impact Scale (Adapted with permission from Newman & Purse, 2007)

Item Number	Items
11	I always tell the truth.
22	It's easy for me to forgive and forget.
33	I gossip a little at times.

Appendix B

Letter of Information – Future Launch

RBC Future Launch Letter of Information and Consent Form for Participants

Dear Participant,

RBC Future Launch has provided a grant to support this program. RBC Future Launch is a 10-year $500 million commitment to help Canadian youth prepare for the jobs of tomorrow. As part of the evaluation requirements of this grant, we are asking you to participate in two surveys. Further information is provided below.

Purpose of Evaluation
The evaluation includes taking a survey prior to program participation and a survey after program participation. The survey asks questions about skill development, job readiness, and perceptions and experiences in the workforce (if applicable).
This information will help to inform us about the eff effectiveness of this program and will be used to inform further program development.

How to Participate
Surveys can be accessed online through the survey link provided by program staff. If internet access is not available, program staff will provide a paper survey. Each survey will take about 10 minutes to complete.

Voluntary Participation
Participation in this evaluation is voluntary. If a question makes you uncomfortable, you can skip that question. You may stop participating in the survey at any time. Your participation will not influence your current or future relationship with RBC or the program provider.

Confidentiality and Risks
All survey responses are anonymous and confidential. The survey provider, Forum Research Inc., is committed to privacy. Please view Forum Research Inc.'s privacy policy for more detailed information. Potential risks in participating in this study are very low.

The survey findings will be aggregated and compiled into a report for RBC and the program provider.

Data collected will be used in publications, reports, and/or presentations.

Questions
If you have any questions about participation, please contact us at measurement@rbc.com
For technical questions related to the survey please contact rbcsurvey@forumresearch.com

Yours Sincerely, RBC Future Launch Project Team

I have read and understood the conditions under which I will participate in the surveys.
I hereby consent to be a participant.

Full Name:	
Signature:	
Date:	

Appendix C

Ethics Approval Certificate

Certificate of Approval - Annual Renewal

PRINCIPAL INVESTIGATOR:	**Lucinda Brown** (Supervisor)	**ETHICS PROTOCOL NUMBER:** Chair/Vice-chair - delegated	**23-0317**
PRINCIPAL APPLICANT:	**Andree-Anne Poirier-Leroy** **Master's student**	ORIGINAL APPROVAL DATE:	01-Sep-2023
		APPROVED ON:	24-Jul-2024
UVIC DEPARTMENT:	**Educational Psychology and Leadership Studies EPLS**	APPROVAL EXPIRY DATE:	31-Aug-2025

PROJECT TITLE: **Emotional intelligence and career readiness intervention: Effects on emotional intelligence, 21st century skills, and workplace preparedness in university business students**

RESEARCH TEAM MEMBERS: **None**

DECLARED PROJECT FUNDING: **None**

DOCUMENTS INCLUDED IN THIS APPROVAL:
tcps2_core_certificate.pdf - 15-Aug-2023
Appendix 1 - Data collection career survey.pdf - 28-Aug-2023
Appendix 2 - Data collection ECR.pdf - 28-Aug-2023
RE_ Request_ MA Research Study on EQ_Career.pdf - 31-Aug-2023

Conditions of approval

This Certificate of Approval is valid for the above term provided there is no change in the protocol.

Amendments
To make changes to the approved research procedure in your study, please submit "Amendments" or "Annual renewal with amendments" form. You must receive research ethics approval before proceeding with your amended protocol.

Renewals
Your ethics approval must be current for the period during which you are recruiting participants or collecting data. To renew your protocol, please submit a "Request for Renewal" form before the expiry date on your certificate. You will be sent an emailed reminder prompting you to renew your protocol about six weeks before your expiry date.

Project Closures
When you have completed all data collection activities and will have no further contact with participants, please notify the Human Research Ethics Board by submitting a "Notice of Project Completion" form.

Certification

This certifies that the UVic Human Research Ethics Board has examined this research protocol and concluded that, in all respects, the proposed research meets the appropriate standards of ethics as outlined by the University of Victoria's policies for research involving human participants.

Dr. Sandra Gibbons
Chair, Human Research Ethics Board

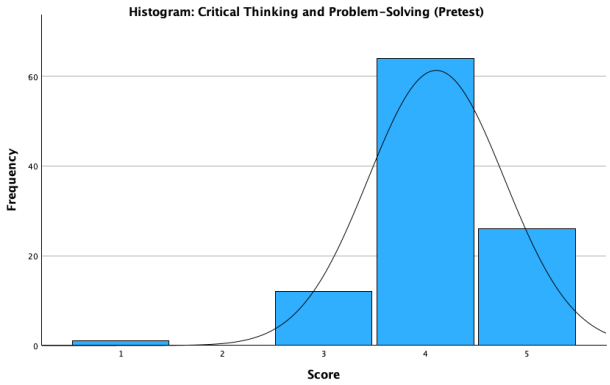
Dr. Cindy Holder
Vice-chair, Human Research Ethics Board

Appendix D

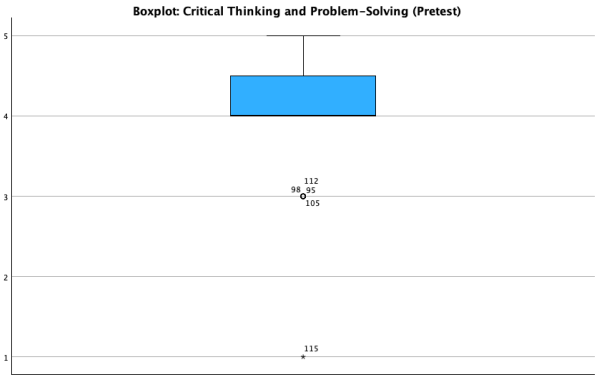
Figure D1

Distributional Diagnostics for Critical Thinking and Problem Solving (Pretest)

Panel A. Histogram ($N = 121$)



Panel B. Boxplot ($N = 121$)

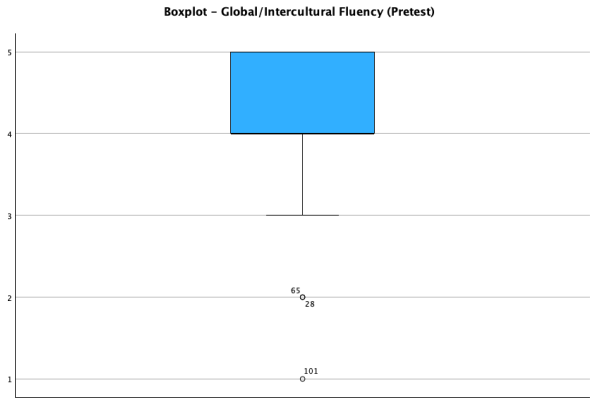


Note. The histogram and boxplot show a negatively skewed distribution, with most responses clustered at 4 and 5, indicating high perceived competency. Low-end outliers (scores of 1 and 2) were flagged; one score of 1 was removed as an extreme outlier.

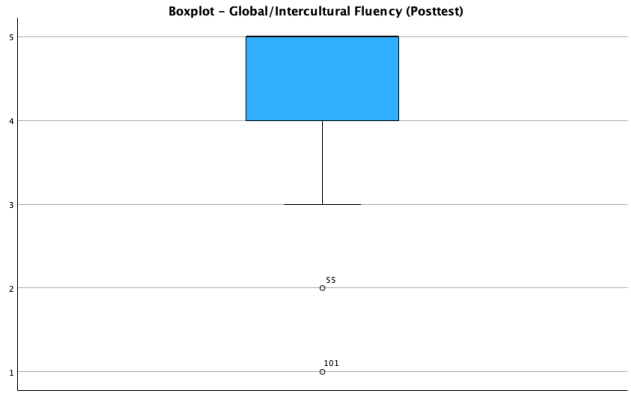
Figure D2

Distributional Diagnostics of Global/Intercultural Fluency

Panel A. Boxplot (Pretest)



Panel B. Boxplot (Posttest)

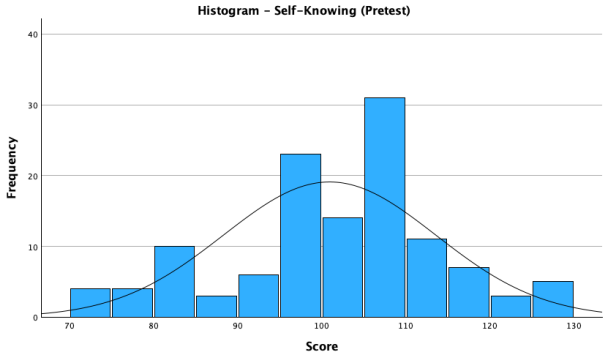


Note. Pretest and posttest distributions are negatively skewed, with most responses concentrated in the upper range (4-5). Low-end outliers (score of 1) were removed at both time points.

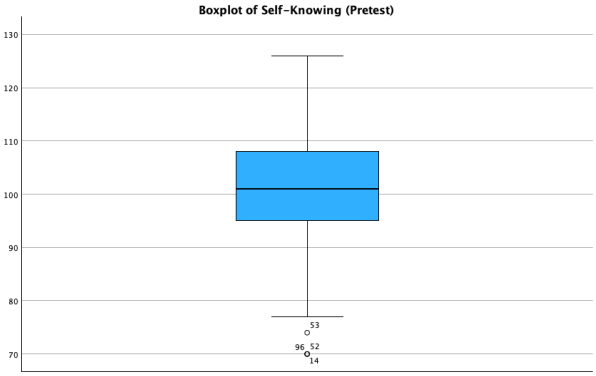
Figure D3

Distributional Diagnostics for Self-Knowing (Pretest)

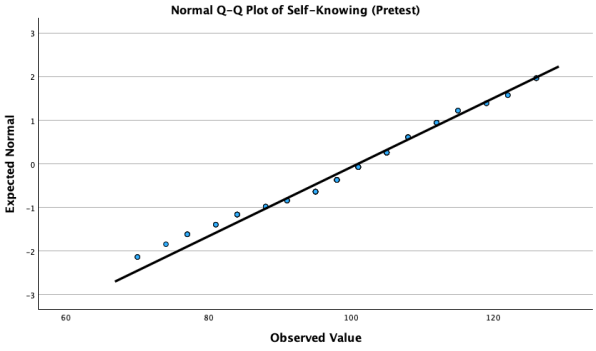
Panel A. Histogram ($N = 121$)



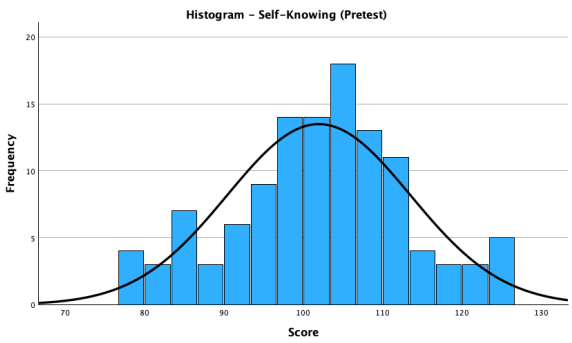
Panel B. Histogram ($N = 121$)



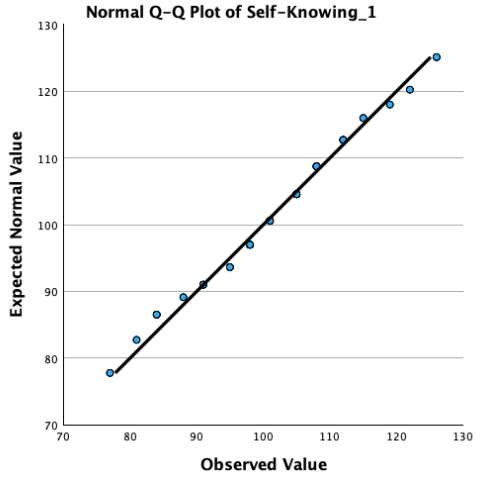
Panel C. Q-Q Plot ($N = 121$)



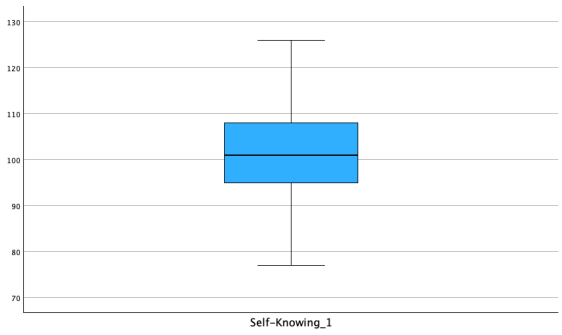
Panel D. Histogram (Outliers removed, *N* = 117)



Panel E. Q-Q Plot (Outliers removed, *N* = 117)



Panel F. Boxplot (Outliers removed, *N* = 117)

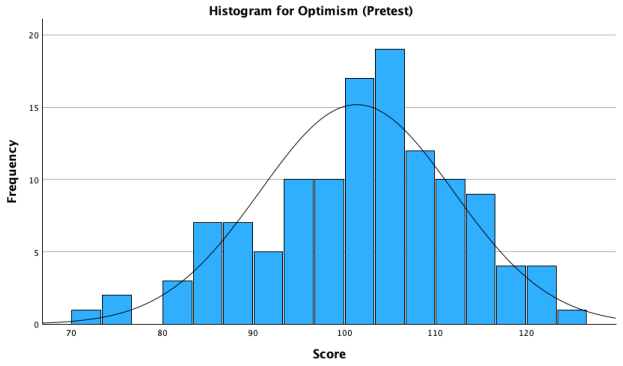


Note. Four low-end outliers were removed, resulting in improved normality (Panels D-F).

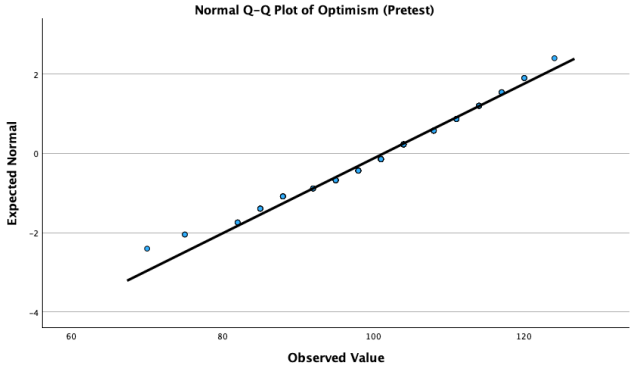
Figure D4

Distributional Diagnostics for Optimism (Pretest)

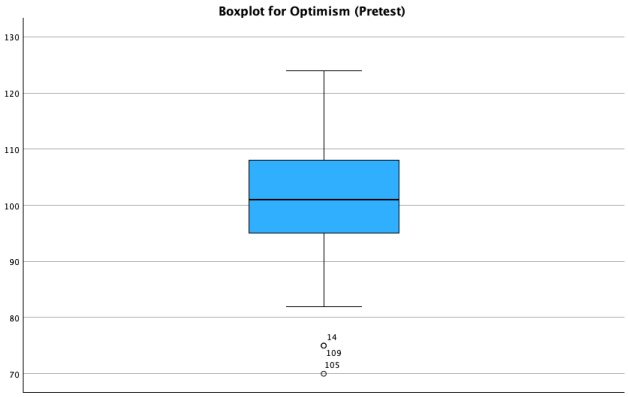
Panel A. Histogram ($N = 121$)



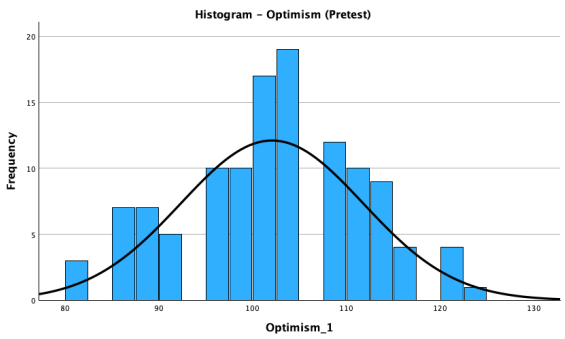
Panel B. Q-Q Plot ($N = 121$)



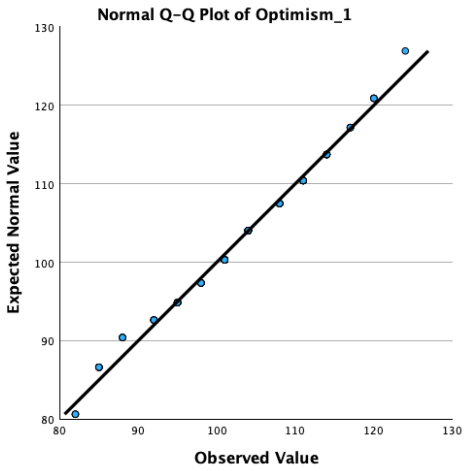
Panel C. Boxplot ($N = 121$)



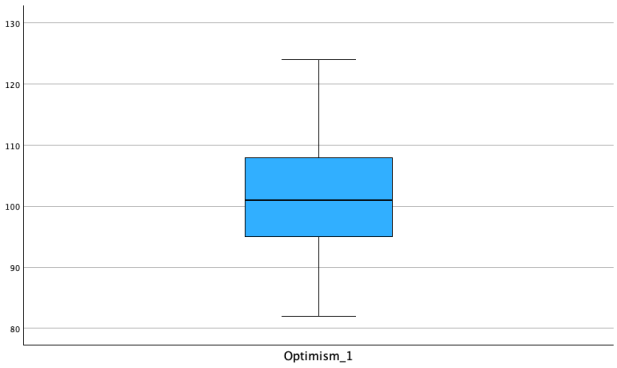
Panel D. Histogram (Outliers removed, *N* = 118)



Panel E. Q-Q Plot (Outliers removed, *N* = 118)



Panel F. Boxplot (Outliers removed, *N* = 118)



Note. Three extreme outliers were removed; subsequent diagnostics suggest distribution appears symmetric, with the median centered in the interquartile range (IQR).

Appendix E

Table E1

Inter-scale Correlations for Career Readiness at Pretest

Variable	CT	OW	TC	DT	LD	PW	CM	GI
CT	1	.38**	.24*	.16	.40**	.25**	.32**	.25**
OW		1	.03	.16	.15	.21*	.42**	.05
TC			1	.15	.29**	.27**	.24**	.25**
DT				1	.05	.26**	.13	.24**
LD					1	.28**	.23*	.15
PW						1	.55**	.13
CM							1	.13
GI								1

Table E2

Inter-scale Correlations for Career Readiness at Posttest

Variable	CT	OW	TC	DT	LD	PW	CM	GI
CT	1	.49**	.16	.25**	.49**	.09	.33**	.10
OW		1	.15	.30**	.43**	.06	.10	.22*
TC			1	.51**	.13	.33**	.31**	.52**
DT				1	.09	.21*	.29**	.33**
LD					1	.23*	.30**	.21*
PW						1	.41**	.42**
CM							1	.47**
GI								1

Note. N = 115. Career Readiness Abbreviations: CT = Critical Thinking/Problem-Solving, OW = Oral/Written Communications, TC = Teamwork/Collaboration, DT = Digital Technology, LD = Leadership, PW = Professionalism/Work Ethic, CM = Career Management, GI = Global/Intercultural Fluency.

*$p < .05$. **$p < .01$.

Table E3

Inter-scale Correlations for ECR at Pretest

Variable	SK	SF	SR	SA	ST	RS	EM	SC	AP	OP	PI	EC
SK	1	.20*	.35**	.37**	.27**	.25**	.46**	.24**	.21*	.27**	.19*	.59**
SF		1	.36**	.45**	.35**	.36**	.06	.34**	.30**	.55**	.18	.67**
SR			1	.39**	.54**	.16	.06	.22*	.34**	.29**	.03	.60**
SA				1	.24**	.37**	.24**	.17	.25**	.58**	.07	.66**
ST					1	.32**	.03	.25**	.36**	.26**	.04	.60**
RS						1	.57**	.14	.32**	.32**	.12	.63**
EM							1	.09	.27**	.12	.24**	.47**
SC								1	.49**	.40**	.43**	.56**
AP									1	.35**	.26**	.62**
OP										1	.27**	.68**
PI											1	.31**
EC												1

Table E4

Inter-scale Correlations for ECR at Posttest

Variable	SK	SF	SR	SA	ST	RS	EM	SC	AP	OP	PI	EC
SK	1	.22*	.39**	.39**	.46**	.55**	.54**	.19*	.37**	.27**	.27**	.66**
SF		1	.41**	.62**	.33**	.43**	.13	.39**	.27**	.62**	.19*	.67**
SR			1	.44**	.59**	.29**	.18*	.24**	.41**	.45**	.04	.64**
SA				1	.29**	.48**	.36**	.06	.31**	.73**	.04	.72**
ST					1	.29**	.16	.17	.32**	.19*	.10	.55**
RS						1	.63**	.26**	.48**	.37**	.31**	.75**
EM							1	.06	.30**	.23*	.30**	.56**
SC								1	.53**	.40**	.42**	.51**
AP									1	.36**	.27**	.65**
OP										1	.23*	.72**
PI											1	.34**
EC												1

Note. $N = 121$. ECR abbreviations: SK = Self-Knowing, SF = Self-Confidence, SR = Self-Reliance, SA = Self-Actualisation, ST = Straightforwardness, RS = Relationship Skills, EM = Empathy, SC = Self-Control, AP = Adaptability, OP = Optimism, PI = Positive Impact, EC = ECR Total.

*$p < .05$. **$p < .01$.