

A Developmental Perspective on Personal Strengths: A Study of Strengths and Related  
Variables that Promote Well-Being and University Adjustment in International and Domestic  
Students

Jane Harder Smith, MA

Lakehead University

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Supervisor: Dr. Edward Rawana, Ph.D., C.Psych<sup>1</sup>

Committee member: Dr. Josephine Tan, Ph.D., C.Psych<sup>1</sup>

Internal examiner: Dr. Jodie Murphy, Ph.D.<sup>2</sup>

External examiner: Dr. Virginia Tze, Ph.D.<sup>3</sup>

<sup>1</sup>Lakehead University, Faculty of Health and Behaviour Sciences, Department of Psychology

<sup>2</sup>Lakehead University, School of Social Work

<sup>3</sup>University of Manitoba, Faculty of Education

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### **Author's Note**

I first wish to express my own position in terms of culture and upbringing as the context with which I approached conducting and writing about this research. I am a White woman and the grandchild of European immigrants and settlers. On my mother's side, I have roots in the British Dominion of Newfoundland prior to the region's incorporation as the Canadian province of Newfoundland and Labrador. My grandparents lived in numerous places across Canada before settling in Saskatoon, Saskatchewan. On my father's side, my ethnically Polish paternal great-grandparents emigrated from Germany where they had been indentured labourers during World War II. My grandmother was 6 years old at the time of her immigration and grew up in Saskatchewan where her family settled. Though I claim no biological relation to my stepfather, I was also influenced by his French Canadian family into which I was effectively adopted. I was born in 1994, and was raised by my mother, stepfather, and father in Saskatoon on Treaty 6 territory and the traditional homeland of the Métis. I have been impacted by the legacies and cultures of my ancestors, while also being raised in the Roman Catholic Church and attending Catholic school. I recognize that I have been privileged to benefit from Whiteness and the benefits passed down to me by cultural and faith communities which have perpetuated serious harm against other people(s).

I have been lucky to be educated and clinically trained in many places across Turtle Island (colonially known as North America). I received my undergraduate education at the University of Saskatchewan in Saskatoon. I completed my graduate training in Anemki-Wequedong (colonially known as Thunder Bay, Ontario), the traditional lands of the Fort William First Nation, signatory to the Robinson-Superior Treaty of 1850. Additionally, I completed my pre-doctoral residency in Treaty 7 territory, what is traditionally known as Moh-

kins-tsis, Wîchispa Oyade, Otos-kwunee, and Guts-ists'i (colonially known as Calgary, Alberta).

The research contained within this document was conducted at Lakehead University in Thunder Bay. I express my deep gratitude for the privilege to work and live on these lands and to live in solidarity with the historical and ongoing stewards of the land in the spirit of Treaty 6, the Robinson-Superior Treaty, and Treaty 7 in turn.

### Abstract

**Background.** The study of personal strengths (or an individual's assets, skills, and positive traits) has informed the formulation of different strength models (e.g., the ego strengths and psychosocial strengths models).

**Purpose.** The first objective of the present project sought to understand the relationships between these strength models, use of psychosocial strengths in everyday life, well-being, resilience, perceived stress, and adjustment to university in international and domestic university students. A second objective of the project sought to understand international students' perspectives on the lifetime development and current use of their psychosocial strengths.

**Method.** Study 1 involved quantitative measurement of the variables of interest at two timepoints. A sample of  $n=358$  students participated at Time 1, with  $n=149$  returning to participate at Time 2. Study 2 involved conducting qualitative interviews of this nature with  $n=13$  international students.

**Results.** Relationships between variables were consistent with those previously observed in research of this nature. Psychosocial strengths were positively related to ego strengths, well-being, resilience, and university adjustment; and negatively related to stress. The relationship between psychosocial strengths and well-being did not tend to be stronger with higher use of psychosocial strengths. Ego strengths measured at Time 1 also accounted for levels of well-being and adjustment to university measured at Time 2, over and above the variance attributed to perceived stress. International students identified various pathways of development that strengths have taken over their lifetime and cited attending university as an international student as both a barrier to engagement with their strengths, as well as an opportunity for their strengths to develop further.

**Discussion.** The implications of the findings for strengths conceptualization within positive psychology research are considered. The application of this conceptualization to the international student experience is then explored and potential supports within academic settings are discussed. This discussion is placed in the context of the current status of international student recruitment in Canada, wherein the rate of international students accepted for study in the country has been greatly reduced in recent years. Possible pathways forward (in terms of allocation of supports for remaining international students) are then explored.

*Keywords:* positive psychology, personal strengths, psychosocial strengths, well-being, university students, international students

**A Developmental Perspective on Personal Strengths: A Study of Strengths and Related Variables that Promote Well-Being and University Adjustment in International and Domestic Students**

“Positive psychology” is a branch of psychological research and clinical practice largely concerned with the beneficial and useful aspects of an individual’s personality and life experiences. Within this branch of psychology, understanding one’s personal strengths (the assets, skills, and positive traits that an individual possesses) is considered to be essential for understanding an individual as a whole person. In studying personal strengths, positive psychology has deviated from the large majority of psychological research, which is often focused on psychopathology. Findings from positive psychology research have revealed that personal strengths are strongly correlated with overall well-being (e.g., Wood et. al, 2011).

Although “positive psychology” as a *theoretical* stance consistently guides such research, the ways in which strengths are studied *empirically* have been variable. Personal strengths are operationalized in different ways throughout this research as a result. Regardless of whether they are operationalized as positive personality traits (such as in the ego strengths model) or as assets and practical skills (such as in the psychosocial strengths model), the positive correlations between strengths and well-being remain. When operationalized as positive traits, research demonstrates that strengths can be thought of as an integral part of positive development beginning in childhood and continuing throughout the lifespan (e.g., Dvorsky et al., 2019), contributing to an overall sense of well-being. A gap in the field’s understanding of strengths, however, is of how they develop over time. Additionally, the relationship between well-being and strengths is less well-understood when strengths are operationalized as assets and skills, as

opposed to positive personality traits. Within this document, a pursuit is undertaken to help fill this gap through review of past scientific literature and new findings from the present project.

### **Introduction to Personal Strengths and Related Research**

This introduction begins with a literature review in which strengths (on the whole, and as conceptualized throughout the literature) are framed as developmental assets. Through this lens, a developmental stance on both the ego strengths and psychosocial strengths models is taken, and research relating to each model is considered. Through the comparison of the two strength models, a justification for applying a developmental approach to the psychosocial strengths model is formulated. This stance is taken in order to understand the fostering and growth of strengths within specific life domains (i.e., specific psychosocial strengths) over time. This developmental approach will contribute to further validation of the psychosocial strengths model. It will also provide evidence for its applicability to both present experience and lifetime developmental trajectory of personal growth.

Given the gaps in strengths research which are identified through the following literature review, a discussion of the specific populations in which strengths research is called for is then undertaken. International post-secondary students are highlighted here as a population for whom strengths research can be beneficial. Past research pertaining to well-being and mental health in international students is considered in the formulation of the present project. Finally, emerging research questions and hypotheses are proposed, followed by a summary of the undertaken research and a discussion of the results and findings. Implications of the present findings for future research and post-secondary educational settings are then considered.

### **Conceptualizing Strengths from a Developmental Perspective**

From the perspective of positive psychology, personal strengths are defined as any facet of one's personality or experience that are considered to be sources of personal growth or means of coping with challenges (McQuaide & Ehrenreich, 1997). The inclusion of the concept of "growth" in this definition implies that strengths develop over time and with experience. It also serves as a starting point for understanding the circumstances under which this development occurs. To this end, strengths can emerge from either positive or negative experiences in one's life, providing many opportunities and pathways for positive development to be realized. In other words, adverse life events are not required for strengths to emerge, be cultivated, or improve; rather, strengths can also emerge and develop simply over the course of day-to-day living. However, strength development also adds a "silver lining" to challenges in life, in that strengths can serve as a positive consequence of adversity.

This balanced conceptualization is especially important when considering various constructs related to strengths. One construct that is, by definition, related to strength development is resilience, or positive adaptations to challenges and negative life events that buffer against diminished well-being (Goodman, et al., 2017). Resilience can be thought of as both an inherent trait and/or a developed competency that can increase over time and with practice. In the same way, strengths can be reflective of an inherent disposition or talent, but can also be indicative of a developed competency that has been fostered throughout the lifespan by positive or negative experiences alike (Harder, 2020). Strengths may therefore be thought of as a source of resilience that can be both drawn on and fostered during times of challenge or hardship in one's life.

In addition to being understood as emergent individual competencies and a source of resilience, strengths are also considered a normative part of positive lifespan development

(Bowers et al., 2010). Positive development is defined as not merely the reduction or elimination of risky or problematic behaviours, but also the opportunities for thriving and/or enhancement of life experiences. The “Five Cs” of positive development are interrelated psychological, behavioural, and social constructs that closely related to strengths. Bowers and colleagues describe Confidence (overall sense of self-worth), Competence (positively viewing one’s own actions in various domains of life, such as social functioning and work), Caring (empathy), Connection (positive relationships with other people and institutions relevant to day-to-day life), and Character (possession of a moral code that is respectful of society and culture) as factors that allow for the deepening and increasing of strengths within an individual. They also provide a framework for how an individual utilizes their strengths within their environment. In other words, these factors encompass one’s personal inner growth and mastery in various domains of one’s life, as well as how those life domains relate to the relationships one has with significant others and society at large.

Theoretical models like the Five Cs are bolstered by other research demonstrating that strengths contribute to a positive developmental trajectory over the course of the lifespan. In particular, empirical evidence suggests that strengths can be considered “positive developmental assets” as one moves from adolescence into emerging adulthood (e.g., Allemand et al., 2015; Dutra-Thomé et al., 2015; Gomez-Baya et al., 2020; Hawkins et al., 2012; Pashak et al., 2012, Sanders et al., 2015, and so on). For example, Hawkins et al.’s 2012 research found lower levels of antisocial behaviour and higher levels of emotional well-being, physical well-being, and friendship quality for adults aged 23 to 24 years who scored highly on positive development at age 19 to 20 years. Their operationalization of “positive development” in this study was highly reflective of the Five Cs, including one’s levels of social competence, life satisfaction, trust and

tolerance of others, trust in authorities and organizations, and civic action and engagement.

Likewise, additional research has demonstrated that higher levels of strength are associated with lower levels of anxiety, depression, and conduct problems as an individual transitions from adolescence to emerging adulthood (Pashak et al., 2014). Thus, research bears out a balanced view of strengths by showing their relationship to both positive and negative life experiences.

One potential limitation of these studies is their lack of longitudinal and/or retrospective design. The aforementioned research by Hawkins et al. (2012) and Pashak et al. (2014) indicate that strengths can contribute to positive outcomes, but do little to explain how strengths themselves might change and develop over time. By contrast, qualitative research by Owens and colleagues (2018) examined retrospectives on strength development from the perspective of older adults. These participants shared narratives suggesting that not all strengths are equally relevant at different points in the lifespan, and that specific areas of strength can grow and change throughout the lifespan. Their findings suggest that different domains of life, one's competence within them, and their relevance to day-to-day living also change as one ages. For example, while some individuals stated that their strengths were inherent qualities that they had always been able to observe, others noted the role of significant others (such as family members, partners, and peers) in fostering their strengths throughout their lives. Still others cited the waxing and waning of certain strengths over time as they became more or less applicable to their current phase of life. In consideration of these findings, further investigation as to how strengths develop over time within the individual is warranted. Such an investigation might consider several aspects of strength development, including the relative importance of each of an individual's strengths or the influences contributing to ongoing strength development. The ways in which different strengths models (such as the ego strengths and psychosocial strengths

models) and research investigating their validity have incorporated lifespan development into their understanding of the construct (or failed to do so) should therefore be considered.

## **The Ego Strengths Model and Related Research**

### ***Conceptualizing Ego Strengths***

How strengths are operationalized is an important factor to consider when conducting research into individual strengths. Examination of the literature reveals that strengths have been operationalized in many ways over the course of years of positive psychology research. For example, the Eriksonian model of ego strengths is a model which explicitly incorporates lifespan development into its understanding of personal strengths by directly addressing identity formation and strength acquisition over time (Markstrom et al., 1997).

This framework describes how strengths develop throughout the lifespan, as well as which strengths tend to emerge during relevant life stages (Marcia 2002). In this conceptualization, individuals have the opportunity to incorporate specific attributes (i.e., ego strengths) into their identity following periods of “crisis,” or challenge to overcome. The “crises” in question are conceptualized in stages, such that certain attributes emerging from crises become more relevant during different phases of life. These life stages are delineated using the developmental milestones that are characteristic of Erikson’s stage theory of psychosocial development, which conceptualizes the lifespan as being divided into eight age-related stages (e.g., infancy, childhood, adolescence, and so on; Gfellner & Córdoba, 2011; Markstrom et al., 1997). An opportunity to develop a new corresponding ego strength is thought to be present during each respective stage. As such, the strength of hope is thought to emerge during infancy; will and purpose in childhood; competence and fidelity during adolescence; love during

emerging adulthood; care during adulthood; and wisdom during later adulthood (Markstrom et al., 1997).

The challenges in each life stage produce an atmosphere that is conducive to the nurturing of the corresponding strength (Markstrom et al., 1997). Markstrom and colleagues (1997) describe the model as follows:

- An individual is thought to have a positive trajectory of overall lifespan development if they are able to resolve their crises within the life stage in question, and acquire the strength that corresponds to that life stage.
- Failure to resolve these crises results in a subsequent failure to develop positive competencies and characteristics that contribute to a sense of well-being in the next stage of life. For example, the infant who learns to trust their primary attachment figures (most often their biological parents) by the age of approximately eighteen months will acquire the strength of hope and proceed to the next stage of development. By contrast, those who default to mistrust will remain stagnated in their emotional and identity development as they progress into the early childhood years.
- This ego strengths framework is therefore inherently related to lifespan development; thus, ego strengths can be assessed during any stage of life, though certain strength areas might not yet be relevant to a younger individual (e.g., a child would not yet be expected to encounter challenges particularly conducive to the development of wisdom until they have grown older).

When it comes to such assessment, ego strengths can be measured empirically using the Psychosocial Inventory of Ego Strengths. This measure is intended to assess the degree to which one has resolved the challenge or crisis that would lead to the emergence of certain strengths at

different points in development (Markstrom et al., 1997). In other words, personal development is partly reflective of resilience, as difficulties in life can provide an environment in which meaningful change may occur within the person and lead to the development of one strength or another. In turn, higher levels of ego strength generally correlate positively with different facets of well-being (such as self-esteem and locus of control), as well as resilience and positive coping (Markstrom and Marshall, 2007). Within this framework, ego strengths can be thought of as “virtues,” or universally positive aspects of development which contribute to one’s personality and positive identity development (Markstrom et al., 1997).

### ***Research Using an Ego Strengths Framework***

University attendance can be thought of as a transitional period of life as individuals temporarily take on the role of “post-secondary student” and begin to plan for future careers. Statistically, the majority of students attend Canadian universities in their emerging adult years (Statistics Canada, 2024) when they are likely beginning to take on adult roles in their life and work. Emerging adult samples of university students in this transitional period are often used to study ego strengths. Indeed, there is a modest body of literature (as summarized here) focusing on the role of identity development and ego strength of fidelity as one transitions from adolescence into emerging adulthood. For example, a study of a general population of youth suggests that there is a strong link between the development of identity and the development of a sense of purpose, or commitment to goals or aims in life according to one’s strengths and values (Hill & Burrow, 2012). The authors suggest that commitment to identity and life goals reflects the ego strength of fidelity (defined as commitment to identity) that can emerge during this life stage, as commitment to a purpose in life can facilitate identity commitment in turn. These conclusions are further supported by studies which found that positive identity formation was

positively related to both ego strengths and well-being (Gfeller & Cordoba, 2017; Markstrom & Marshall, 2007). Anthis (2014) also found that overall levels of ego strengths were related to the establishment of career identity following adolescence. The observed associations among variables related to ego strengths and well-being within these studies have clear implications for the positive development of identity during the transition from adolescence to emerging adulthood when an individual is usually making key decisions about their life course (Arnett, 2000). Further research has investigated the relationships between ego strengths, well-being and cultural identity (therein conceptualized as a specific aspect of overall personal identity). For example, research suggests that strong cultural identification is associated with higher levels of ego strengths in Indigenous adolescents and emerging adults (Gfeller, 2016; Gfeller & Armstrong, 2012). In this way, one's culture is considered a positive aspect of identity that can contribute to a sense of well-being.

Given that ego strengths have been measured with diverse populations in these studies, it is worth considering whether the model is cross-culturally valid. Like much past research, the above studies utilized a framework (i.e., ego strengths) that was developed from a Western perspective. The potential for generalizability of the ego strengths model (or lack thereof) may be a limitation to cross-cultural research in which it is used. In spite of the circumstances of its development, the measurement of ego strengths has demonstrated validity in a variety of ethnic groups (see Gfeller, 2016; Gfeller & Córdoba, 2017; Markstrom & Hunter, 1999; Markstrom & Marshall, 2007). Moreover, the model is considered to align with current practices in cross-cultural psychology and non-Western conceptualizations of wellness (which include more holistic understandings of health and well-being and not the absence of pathology alone; Syed, 2018). As its use with diverse populations has been validated, the ego strengths framework could

possibly be used as a tool to validate other emerging strengths frameworks in such populations. As shown in the research understanding cultural connectedness in relation to ego strengths, cultural identification itself may also be conceptualized as a strength on its own terms within such research.

### **Understanding Similarities Among and Differences Between Strengths Models**

Collectively, the body of strengths-related research contains a significant amount of knowledge about individuals' inner worlds and life experiences. For example, strengths of character as explicated by Peterson and Seligman (Park et al., 2004) is a model that has contributed much in this regard. In this model, strengths are understood to be specific personality traits that can be observed in an individual's thoughts, feelings, and behaviours. These traits contribute to "good character," in that they are central to one's ability to flourish in life. Another example is the psychosocial strengths model. This relatively new conceptualization of strengths is a unified framework of strengths as they exist within concrete life domains (Rawana & Brownlee, 2009). Psychosocial strengths encompass specific competencies within various types of interpersonal relationships, life skills, and areas of self-understanding. Common features among these two strengths models, as well as the aforementioned ego strengths model, include their positive associations with well-being and satisfaction with life, their roles in understanding individual differences, and their understanding of the interplay between personal disposition and environment to foster strengths.

When considering how various strengths models may be researched in tandem with one another, it is helpful to understand how they differ from one another. For example, examination of the literature as a whole shows that the ego strengths model is somewhat unique in its developmental stance. Though the ego strengths model provides a framework for the

development of an individual's strengths over the lifespan, not all strengths models explicitly account for lifespan development. A review of the literature plainly reveals this uniqueness, as within strengths research as a body of work, there is a relative gap in our knowledge of exactly *how* strengths develop over time. What little research does exist (Allan et al., 2021; Harder, 2020; Owens et al., 2018) suggests the need for investigation into strength development at a relatively early life stage. These studies also highlight that there is relatively little knowledge about emerging adults' and adults' perspectives on how their strengths have contributed to their development thus far. For example, the research accounts for relatively little reflection on how emerging adults and adults see the cultivation of their strengths throughout their lives.

Knowledge of this nature is important to consider given that these life stages typically contain many important developmental milestones. These milestones largely pertain to the important relationship and career decisions that are typically made during one's emerging adulthood (Arnett, 2000, 2007). Thus, qualitative research that allows individuals to construct a narrative of their strength development would contribute greatly to this body of work.

While the opportunity for a developmental narrative has largely been missing from research involving the character and psychosocial strengths models, the variation among these models has many merits that have contributed to our understanding of strengths. These models often draw from different theories to explain how certain areas of strength grow over time. As noted, some models fail to capture a developmental explanation of strengths. They also vary significantly in terms of their concreteness in operationalization. The ego strengths model, for example, mainly considers abstract characteristics and personality factors that occur within the individual. By contrast, the psychosocial strengths model concerns itself with specific life domains such as family and work. This lends itself to the complementarity of the two models, as

the variation in concreteness between them is emblematic of different aspects of the human experience. The development of different strength models also reflects the accessibility of positive psychology, as more concrete or abstract styles of thinking, goal-setting, and personal development are accounted for by one strength model or another.

Differences between strength models lay not only in their developmental stance and operationalization, but also in the amount of research attention they have garnered. Being relatively newly formulated, the psychosocial strengths model has not yet been utilized to a great extent in research. By contrast, both developmental and personality-based strength perspectives (such as ego strengths, Markstrom et al., 1997; and character strengths, Park et al., 2004; respectively) have received more research attention and are better validated within the larger field of positive psychology. Given this disparity, further research which incorporates a psychosocial strengths framework may be warranted. By studying psychosocial strengths in combination with other strength models, the psychosocial strength model can be further validated and can contribute to the larger picture of how strength applies to individual's inner and outer worlds. With this consideration in mind, we now turn to psychosocial strengths and the related literature.

### **The Psychosocial Strengths Model and Related Research**

#### ***Conceptualizing Psychosocial Strengths***

Psychosocial strengths are defined as culturally-valued competencies in specific life areas (Rawana & Brownlee, 2009). In this model, strengths are seen as concrete and pertaining to particular facets of everyday life (e.g., strengths with family, at school, or in relationships). The concrete nature of psychosocial strengths can be helpful for individuals who seek to clearly understand how their positive qualities directly relate to their day-to-day experience. Further, the

psychosocial strengths perspective can have high utility in clinical and educational settings.

Individuals receiving mental health and/or academic advisement services can easily see the areas of life in which they are most engaged, and upon which they place the most value.

Identification of psychosocial strengths may be done by individuals in an ad hoc manner, though they can also be measured in a standardized way. The Strengths Assessment Inventory (SAI) is a measure assessing strengths in various domains of life. At present, youth and adult versions of the measure have been developed and validated (Brazeau et al., 2012; Rawana et al., 2018). An adaptation of the youth version has also been developed for post-secondary students (Strengths Assessment Inventory – Post-Secondary, or SAI-PS), which has demonstrated preliminary evidence of reliability and validity in this author's master's thesis research (Harder, 2020). The SAI-PS assesses the following strength areas: family, school, free time, friends, self-knowledge, healthy lifestyle, being involved, faith and culture, goals and dreams, on the job, relationships/significant other, coping while attending college/university, time management/planning, engaging with others, and parenting. The items in each of these subscales inquire about various aspects of each of these strengths. Respondents are invited to endorse how much they identify with the statement provided in each item. Higher mean scores on a subscale indicate a higher level of identification with the strength represented by that subscale, which can also be thought of as an individual placing a higher level of importance on that strength relative to other strengths measured by the questionnaire.

### ***Research Using a Psychosocial Strengths Framework***

Consideration of these various domains raises another important advantage of using a psychosocial strengths perspective; namely, the measure is entirely tailored to the individual and the strengths that are relevant to their lives. In other words, it is not expected that every

individual would have equally well-developed strengths across the measure (Rawana et al., 2018). It is also not expected that every individual would endorse particularly high levels on each of the strength subscales, but rather would score more highly on the subscales that are most relevant to their lives. For example, a single, childfree university student may identify strengths with school or strengths in adjusting to university and obtain high scores on those subscales, relative to their scores on the rest of the measure; they would not, however, be expected to identify strengths in relationships/with significant other, or strengths from parenting, and would likely obtain lower scores on the corresponding subscales. In practice, the absence of these latter strengths would not be considered a detriment for the individual's functioning, as they have demonstrated possession of strength on other subscales, and therefore in other life domains.

Relatively little research utilizes a single framework for assessing each of these domains simultaneously. Separate studies of these individual domains do suggest, however, that the presence of strength in any life domain is considered positive development, and one need not be strong in all areas to develop on a positive trajectory (Abdel-Khalek, 2010; Gfellner, 2016; Peter et al., 2011; Stander et al., 2017). Simultaneously incorporating many life domains into a study can be accomplished with a measure like the SAI-PS. By using such a measure based on a unified framework of strengths, researchers are not only able to determine the magnitude of these strengths relative to one another, but also what the magnitude of one's signature strengths are relative to other participants. In this case, "signature strengths" are defined as those life domains upon which one places the most importance; on the SAI-PS, these life domains can be identified as those corresponding to the subscales which are higher in magnitude relative to other subscales for an individual respondent.

After signature strengths have been determined, further investigation can be done into the development of signature strengths over the course of the lifespan. This author's past research investigated psychosocial strengths utilizing an emerging adult post-secondary student sample. In this study, the majority of participants endorsed having had their signature strengths present for their entire lives (Harder, 2020). While some of these individuals indicated that these strengths had always been of primary importance in their lives, others spoke to building competency in these areas over time. Within the latter group, participants often indicated that their level of competency within a specific strength domain or their identification with a specific strength increased throughout their lifespan. This study also provided information about related variables that may contribute to, or align with, the development of psychosocial strengths. Higher psychosocial strength endorsement was predictive of well-being, but not depression or anxiety, when accounting for variance attributed to perceived stress in this relationship. In other words, there appears a strong positive relationship between psychosocial strengths and well-being, regardless of an individual's level of perceived stress.

In addition to this author's work, there is also research focused on psychosocial strengths within highly specific populations. A small set of studies of psychosocial strengths have focused on how strength-based interventions with Indigenous youth are tied to recovery and healing. Psychosocial strengths-based treatment has been utilized in substance use treatment for Indigenous youth, and is generally well-accepted as a helpful perspective within such treatment (Clarkson et al., 2013; Harris et al., 2012). Though this research took place with a specific population displaying specific mental health needs, the validity of use of the SAI in these contexts speaks to the potential for cross-cultural applicability of the psychosocial strengths model. This also lends some legitimacy to the use of a psychosocial strengths perspective when

working with populations whose worldviews differ from the Western context in which the SAI measures were developed. Given this preliminary support for cross-cultural use of the SAI, the scope of the populations with whom strength research may be conducted can be broadened significantly.

### **Who Benefits from Strengths Research?**

#### *Methodological Considerations*

Many considerations must be kept in mind when developing and planning research of this nature. For instance, when formulating research to establish the validity of the psychosocial strength model, it is logical to consider who might benefit most from positive-focused research involving strengths. Like much research in psychology, large amounts of strengths-based research have been conducted with university student samples, the majority of whom are usually emerging adults (for example, Arslan et al., 2020; Denovan & Macaskill, 2017; Dolev-Amit et al., 2020). Findings from this research, though limited in generalizability to other populations, have been valuable. These findings have contributed to a better understanding about how emerging adult university students function and flourish within the high-stress, post-secondary educational environment (Duan, 2016). Findings from the aforementioned psychosocial and ego strengths research are largely reflective of the strengths research findings as a whole, as the research speaks to the close positive association between well-being and strengths.

The purpose of studying strengths in the university student population, however, varies from study to study. While some strengths research provides more information about university student psychopathology (such as mental disorders like anxiety, depression, and post-traumatic stress disorder; see Pashak et al., 2014; Pashak et al., 2018, Pashak et al., 2023), other research (such as Allan & Duffy, 2014; Bellier-Teichmann & Pomini, 2015) focuses on how strengths

allow students to thrive. A close examination of this research indicates that the majority of these studies contain a significant methodological issue often seen in measurement of mental health (Huta & Hawley, 2010). The issue in question revolves around the failure to consider well-being and psychopathology as being two separate constructs. It is generally agreed that when measuring constructs under these umbrella terms, researchers should not conceptualize them as opposites ends of a single continuum, but rather as being distinct from one another. Huta and Hawley (2010) posit that such a conceptualization allows for the observation of complex relationships between these variables, sometimes involving additional factors, rather than a straightforward negative correlation between them. It also leads to a discussion of whether it is more helpful to study well-being, psychopathology, or a combination of both when conducting strengths research, and whether there is an advantage to one perspective or another when conducting research within specific populations.

It is worth considering how the study of both positive (e.g., resilience, well-being, self-efficacy) and negative experiences (e.g., stress, anxiety symptoms, depressive symptoms) of university students in the context of strengths can provide a more balanced picture of how students adjust to the university context and flourish within it. Such a balanced stance within a strengths-focused program of research can provide a necessary reframing of the diverse experiences of students without pathologizing natural reactions to stress. Measuring well-being/thriving as its own, unique construct (and not merely an opposite to psychopathology, as suggested in Huta and Hawley, 2010) may be of use when conducting research with Western/majority culture samples versus research with individuals from minority cultures and/or marginalized groups. It also provides a unique opportunity to better understand diverse student

bodies and include marginalized people(s) whose voices may not have previously been the focus of strengths research.

***An Empirically Rooted and Justice-Based Case for Strengths Research with International Students***

Experts within cross-cultural research have called for a greater interest in studying the strengths of marginalized and/or racialized communities (Prasath et al., 2022). This call stems from the effects of colonialism on academic research in the West and the pathologizing of experiences within marginalized communities (see Leong et al., 2024). For example, both positive and negative experiences of Indigenous peoples of Turtle Island are well documented. The negative effects of current and historical traumas experienced by Indigenous peoples in Canada exist alongside positive experiences of cultural resilience, language revitalization, and other efforts toward cultural connectedness and pride (Assembly of First Nations & Health Canada, 2015). There is therefore a distinct possibility that relatively high levels of both well-being and cultural strengths could exist in Indigenous individuals at the same time as they experience psychopathology stemming from other life experiences.

The same principle can be extended to research with other individuals who face some of the same barriers as Indigenous peoples in Canada, such as newcomers to the country. International students largely fall into this newcomer category, and often come from non-Western backgrounds with different worldviews and belief systems than their domestic student peers (Prasath et al., 2022). Much like their Indigenous student peers, these students may also be able to draw on their respective cultures as sources of strength throughout times of hardship (Yakunina et al., 2013). Cultural connectedness could therefore be an area strength for those international students who are part of cultural minorities within Canada.

The Canadian university student body is comprised of diverse groups of people who positively and uniquely contribute to their university and larger community cultures. Being a “cultural mosaic” of a country, Canada has historically been an attractive location for students from around the world to travel to for their studies (Canada International Student Statistics, 2022). International students, in turn, contribute to the cultural diversity of Canada. In particular, students from India and China make up the majority of Canada’s international student population (Choi et al., 2021). Though post-secondary education in Canada is proposed and marketed as an overall positive experience producing positive outcomes, it is important to note that international students may face particular barriers to success when enrolled in post-secondary education (Brunsting et al., 2018; Statistics Canada, 2021a). These barriers can range from systemic factors (such as socioeconomic status, higher rates of mental illness, institutional racism, higher tuition rates, limited access to funding, etc.) to direct and overt experiences of racism and discrimination. The disruptions brought on by the COVID-19 pandemic introduced many additional challenges for international students, many of whom opted to virtually attend Canadian universities while physically residing in their home countries (Matias et al., 2021). All of these factors and potential barriers can contribute to lower positive adjustment to university if not mitigated by institutional processes designed to enhance the international student university experience (Yakunina et al., 2013).

However, from a strengths-based perspective on adjustment, international post-secondary students may demonstrate a unique form of resilience in the face of these challenges. For example, cultural connectedness in this population can be a strength that students of the majority Canadian culture may not possess in the same way (Gfellner & Cordoba, 2017). Cultural connectedness is certainly a possible strength for any student regardless of their enrolment

status. International students who may be living within a different cultural milieu than that of their upbringing may encounter a need for active engagement in their cultural practices or ways of knowing and being. Without this engagement, connection to their culture may lapse or wane. Thus, active engagement with culture (and possibly the social benefits of seeking out other individuals with the same or similar background) presents an opportunity for international students to further develop and deepen their strength from cultural connectedness. As such, these strengths from culture can contribute to a more positive trajectory of personal development for minority culture students.

There is an argument to be made that research with international post-secondary students, whose experiences as newcomers likely contain both positive and negative aspects, may benefit from strengths-focused research. Findings from further research with this population may hold implications for individuals, universities and larger communities in efforts to promote well-being in university students. While individuals may naturally be able access and utilize their strengths, or rely on supports from within their previously-established social networks, there is room for institutions to play a part as well. Universities themselves and the international student resources therein often provide necessary supports and services for this population. Strengths research with international students is therefore warranted, due to the potential role of strengths-based supports and services in helping students cope with these challenges, and to increase their well-being and adjustment to university.

Although little empirical work of this nature has been done with this population thus far, it may begin by utilizing various strengths models (which have been tested and validated within a general population) in a study with international students, in order to expand the models' validity. This could also potentially allow for new (or expanded) models of strength formation

and conceptualization to arise. Additionally, there is a large body of literature with explicit focus on psychopathology of individuals from minority and/or racialized communities (Brunsting et al., 2018). Studying strengths, or strengths in tandem with psychopathology, may help to create a more balanced picture of the experiences of these individuals that is not inappropriately pathologizing or stigmatizing. Such research is therefore essential for supporting international students (and students from any minority culture, regardless of enrolment status) within Canadian post-secondary institutions.

### ***Past Strengths-Focused Research With International Students***

While constructing a research project that appropriately addresses strengths and positive experiences in international students' lives, past research of this nature should be considered. There are a number of studies (as summarized here) which have investigated the roles of cultural connectedness and identity in international student well-being. For example, the ability of international students to fully express their identities (i.e., in a way that incorporates and honours their sense of cultural identity) is tied to positive outcomes like well-being, as well as lower levels of depression (Jung et al., 2007). Access to social support is also associated with greater well-being in these populations (Brunsting et al., 2021). Specifically, there is research evidence for the notion that mutual support between international students and other expatriates from similar cultures allows for the maintenance of cultural identity when studying abroad (Taušová et al., 2019). Overall, greater access to social support (especially that which promotes expression of/engagement with one's culture) may also provide a means of coping with the challenges that international students face in the university setting (Brunsting et al., 2021).

Developing a sense of resilience in order to cope with the challenges inherent to being an international student is considered to be an essential factor in the maintenance of well-being. In

addition to the aforementioned social support and cultural identification, international students also cite taking care of their personal health, and engaging in personal introspection to be coping strategies that boost their sense of well-being (Tseng & Newton, 2002). A reflective coping style is also associated with higher levels of well-being in international students than either strong reactive or avoidant coping styles (Akhtar & Kroener-Herwig, 2019). In other words, international students report higher well-being when adopting solution-focused attitudes and mindfulness of emotions in the face of challenges; by contrast, lower well-being is reported for those who act impulsively/based on emotion or take a stance of willful ignorance of their challenges. Maintenance of well-being seems to be best supported by consistent engagement with one's inner world, while acknowledging the challenges posed by the academic environment.

Personal reflection can also aid international students in conceptualizing their long-term goals and solidifying their identities as emerging adults. In this population, adequately adjusting to the university setting in order to maintain a sense of meaning, purpose, and belongingness in their education is considered an important factor for international students to maintain their well-being (Tseng & Newton, 2002). Though it is clear that one's cultural identity is important for one's sense of well-being, an openness to the changes inherent to beginning post-secondary education within a new culture also contributes to life satisfaction in international students (Shafaei et al., 2018). Therefore, research supports identification with both one's culture of birth and the culture of their educational institution as important contributors to well-being and adjustment for international students.

It is important to consider what might contribute to one's sense of adjustment in this setting. In a study by Hirai et al. (2015), international students had better adjustment to the

sociocultural and university context at their institutions when they had increased perceived control over academic stress. Taken together, the current body of research demonstrates clear potential for engagement with one's strengths (and cultural connectedness in particular) to decrease perceived stress, and increase well-being and university adjustment. It is possible that targeted interventions involving strengths may therefore lead to better adjustment outcomes for international students.

As research results are used to inform programming and intervention at both the community and academic level, taking a strengths-based perspective can be helpful to develop protocols that are applicable to students cross-culturally. Helling and Chandler (2019) explain that cultural resonance, or the ability for service providers within the academic setting to effectively connect with students cross-culturally, necessitates a strengths-based approach. Focus on the positive aspects of one's life and their functioning within them, while simultaneously honoring the struggles that one may have overcome in building and engaging with those positive aspects, can therefore set students up to thrive in the academic environment. Indeed, international students who make use of their personal strengths are less likely to experience acculturative stress and are more likely to have better adjustment to university than those who do not (Yakunina et al., 2013). A recent pilot study by Prasath and colleagues (2022) also supports these findings. In this case, students who attended an eight-week group intervention to enhance awareness of and confidence in their strengths, as well as skills related to resilience, reported an increase in well-being and greater ability to handle academic stress. Such research provides additional support for studying strengths in this population in the service of establishing the utility of such strengths-based interventions for international students.

*Current Knowledge Gaps in and Practical Needs for Strengths Research with International Students*

Examination of the strengths literature reveals a gap in our knowledge of the relationships between key variables based on student status. In other words, it is unclear if the relationships between strengths, well-being, and psychopathology differ between international and domestic students. Given the barriers that international students face, which domestic students usually do not (for example, higher tuition costs and entry requirements for international students), such comparison may yield interesting results. Indeed, previous comparisons between these groups suggest that international students have historically felt more stress and had more symptoms of mental illness than domestic students (Kivelä et al., 2022). Particularly of interest at present is the simultaneous study of university adjustment and psychosocial strengths, and the comparison of these variables between international and domestic students. Research of this nature can help to explore the importance of strengths in light of new challenges associated with beginning university in a new country. In examining this pathway of university adjustment for international students relative to their domestic student peers, while also accounting for how their strengths have developed over the course of their lives, we can also start to identify differences in the strength profiles between these two groups. In turn, the gathered information can be used to tailor strengths-based programming to the needs of the individual seeking services from their institution during their post-secondary education. Such services can also account for potential differences in individuals' university and life experience.

Overall, there is clearly an empirical precedent for studying the function of strengths for international students, as certain strength domains such as cultural connectedness have

demonstrated a key role in increasing student well-being and helping them cope with challenges. However, there is still a relative lack of research exploring the lifespan development of strengths for these students. Though, as previously mentioned, lifespan development is relatively rare in strengths research, studies of this nature may have particular practical utility for a population such as international students in Canada. International students make up a significant portion of the *growth* in Canadian post-secondary student enrolment when compared to domestic students, such that more new international students enrol at Canadian universities each year than new domestic students (Statistics Canada, 2021b). Additionally, prior to the pandemic, there was an observed overall upward trend in international student enrolment at Canadian universities (particularly at universities in Ontario). Lakehead University in particular had a 13% increase in international student enrolment between the 2018-2019 and 2019-2020 academic years (Lakehead University, 2020). This constitutes a strong practical basis for further research on international student strengths, as findings can be used to develop programming to promote the mental health and well-being of this growing population. Attention to these factors may be essential for student retention, graduation, and positive university experiences, as international students continue to face a mounting level of stress in the wake of additional challenges caused by the COVID-19 pandemic (Kivelä et al., 2022).

Beginning to close the aforementioned research gaps is also especially important in the context of the effect of the COVID-19 pandemic on overall university enrolment in Canada and the subsequent effect on the Canadian economy. Consideration of the pandemic's impact on these factors is essential for research carried out during the later stages of the pandemic (i.e., at the point where such effects begin to become clearer). Although students from other countries certainly continue to enrol at Canadian universities, Statistics Canada has projected a significant

loss in tuition-based revenue in post-pandemic years. This, in large part, stems from the potential loss of international student enrolment due to barriers introduced by the pandemic (Matias et al., 2021). Given the aforementioned barriers that international students face upon enrolling in Canadian universities, and the potential additional barriers that may arise following the height of the pandemic, supporting their strengths and well-being during their education should be of paramount importance. Therefore, the following research project presents a unique opportunity to lay the empirical groundwork for eventually introducing strengths-based interventions/programming for this population.

### **Final Considerations for Research**

A final factor that must be taken into account when developing a strengths-focused research project is a delineation between the *knowledge* one has of their own strengths, versus the extent to which one actually *utilizes* their strengths. This is one potential pitfall of the current practices in strength assessment. A review of the strengths literature as a whole, as well as the literature specific to both psychosocial and ego strengths, indicates that the difference between knowledge of one's own strengths and actual use of those strengths in day-to-day life is not usually clearly identified. In general, strengths measures tend to conflate strengths awareness and strengths use. This is true for the aforementioned SAI and ego strengths measures, as well as for other popular measures like the Values in Action Inventory of Strengths (Brazeau et al., 2012; Markstrom et al., 1997; Park et al., 2004). Such a delineation is important because one may be aware of the strengths they possess without making use of them in their lives to actively improve their well-being. Conversely, one might be engaging in a domain of their life or utilizing a characteristic for which they have a particular strength, but have little insight into the areas in which they particularly excel. Interventions with university students intending to

increase awareness of strengths do show, however, that awareness even without conscious use of strengths may promote an increase in well-being (Dolev-Amit et al., 2020). Thus, gaining an understanding of the respective roles of strengths use and awareness would contribute much to field's understanding of strengths as a whole.

Past research also indicates that a delineation between strengths use and awareness is warranted. For example, a lack of awareness of one's strengths is a theme that has also emerged in this author's Masters thesis research (Harder, 2020). In some cases, participants' awareness of their strengths only came about as a result of their involvement in the study. These participants stated that they previously had not thought about some life areas captured by the SAI-PS as being strengths of theirs. However, given that these individuals had endorsed these strength areas as being signature ones (i.e., greater in magnitude than other strength areas measured by the SAI-PS), they clearly had been making use of said strengths in their everyday lives. Thus, participants demonstrated high use but low awareness in this study. However, these differences were captured in qualitative reflections upon participants' individual SAI-PS responses. Investigating potential differences between participants' knowledge and use of strengths through gathering of both quantitative and qualitative data is therefore warranted in the research explicated below.

## **Goals of the Present Study**

### ***Overall Objectives and Research Questions***

Taking past research and theory into account, several interrelated goals of the present study emerge. Overall, the purpose of the research is to gain a deeper understanding of how strengths develop over time within individuals, and apply that understanding to psychosocial strengths as an emerging strength model. International university students in Canada are of

particular interest following previous studies of strengths and related constructs (such as well-being, resilience, stress, and university adjustment). The results may also have practical significance for the recruitment and retention of international students in Canada. Following the literature review, several research questions and hypotheses are of interest in the current project. These questions were addressed through a mixed-methods study including quantitative (henceforth referred to as Study 1) and qualitative (henceforth referred to as Study 2) data collection.

### ***Research Hypotheses***

The following research questions and subsequent hypotheses can be addressed through collection of quantitative data in Study 1. There are theoretical and empirical bases for investigating a number of mental health-related variables in relation to strengths (as referenced throughout the literature review). Though these variables have been utilized in mental health research with international students in the past, their relationship to psychosocial strengths is yet unknown in this population. Emerging from these considerations, an initial question this research seeks to answer is, “How do the pathways relating psychosocial strengths to ego strengths, stress, well-being, resilience, and adjustment to university manifest for international and domestic university students?” A hypothesis related to this question is that both psychosocial and ego strengths (as measured at Time 1) will be positively associated with well-being and adjustment to university (as measured at Time 2) when controlling for the contribution of perceived stress (as measured at Time 1) to this relationship (Hypothesis 1). Although some past research indicates that both perceptions of the university environment and ego strengths remain stable over time (Adams et al., 2000), other factors like well-being and perceived stress are prone to fluctuation over the course of a school year (Conley et al., 2014; Hawkins et al., 2011).

Therefore, measurement at two timepoints will allow for control of any changes in these variables.

It is also important to consider the potential conflation of strengths use and strengths awareness that have been present in past research. To account for this, an additional posed research question is, “How do strengths use and strengths awareness differentially contribute to the cultivation of well-being in this population?” A hypothesis related to this question is that strengths use will moderate the relationship between signature strengths magnitude and well-being, such that the association between signature strengths magnitude and well-being will be greater with higher strengths use, and less with lower strengths use (Hypothesis 2). The role of the variable “signature strengths magnitude” as a proxy for psychosocial strengths is further discussed in the Method section.

Lastly, an important aim of this research is to continue to establish validity of the SAI-PS in research settings. This measure is currently still in development, and has shown some preliminary evidence of reliability and validity (Harder, 2020). Hopefully, this study will lend further credence to these findings by investigating psychosocial strengths in tandem with ego strengths, well-being, stress, and resilience. A hypothesis related to this question is that psychosocial strengths (operationalized as signature strengths magnitude) will be positively associated with well-being, ego strengths, resilience, and negatively associated with stress (Hypothesis 3). Along with validating the model on an empirical level, this investigation will also provide a theoretical basis for consideration of how psychosocial strengths provide the contexts in which more abstract strengths, like ego strengths, may flourish.

### ***Exploratory Research Questions***

Further to the considerations leading to the above hypothesis, two other research questions that can be posed are, “Is there a significant difference between international students and their domestic student peers on their levels of well-being, resilience, and university adjustment?” and, “Do the most commonly endorsed strength domains differ between international and domestic students?” As these questions are exploratory ones, no specific hypotheses have been made regarding the outcome of these comparisons; however, data from Study 1 can be used to investigate them.

Another central purpose of this project is to develop a comprehensive understanding of how strengths contribute to an individual’s university adjustment. Given the need for further explanation of how a developmental model can be applied to the psychosocial strengths perspective, exploring how the strengths that could help an individual adjust to the university context have grown and changed over time is warranted. As reviewed, prior research and current university recruitment practices also justify studying these experiences with international students. Therefore, another research question to consider is, “How do international university students understand their psychosocial strengths as having developed over time, and how do they understand their psychosocial strengths in their current stage of life?” This question will be addressed through the collection of qualitative data by way of interviewing in Study 2. This process has been endorsed by international student service partners at Lakehead University, as it allows for a narrative format of data collection that may be more culturally appropriate for some international students. Further discussion of building relationships with these service partners and implications for data collection can be found in the Method and Discussion sections.

### **Method**

This research project was conducted with a mixed-methods design utilizing both quantitative and qualitative methods of data collection and analysis. The quantitative portion of the study was also longitudinal in nature with data collection occurring at two time points over the course of a single academic year.

#### **Consultation with the University Service for International Students**

When considering how best to formulate a research project and collect data regarding strengths with university students, some of whom are international students, it is important to remember that experts also cite a need for involvement of international students and organizations established to serving their unique needs in research (Page & Chahboun, 2019). Conducting research in this way while working to make the academy a more accessible place for international students and scholars is a critical component of the decolonization of Western psychology, within which this author has trained. With this consideration, this research was formulated with a participatory action research (PAR) framework in mind. PAR is a research design that prioritizes the knowledge of marginalized communities and allows community members to help shape research questions and the procedures (Kidd et al., 2018). The research questions and data collection methods were therefore developed in consultation with staff at the International Student Services Centre (ISSC) at Lakehead University. The knowledge gained from the project is then considered the property of the participants, community, or organization who served as the project partners.

The first objective for this project was to establish relationships with the staff at ISSC. Staff at the ISSC directly interact with international university students and have knowledge and experience to help these students thrive in the university context. A research partnership such as

this allows for this author to understand how the population in question can be served by research of this nature. At the point of project formulation, members of the Lakehead International team (the larger university organization governing the operations of the ISSC and international student relations more generally) had identified that research into university student strengths is warranted and welcomed. Ultimately, the goal of the project is to produce knowledge that can be used to help the participants continue to thrive at university.

In the spirit of this goal, this author began discussions with leadership at Lakehead International regarding the needs of the organization and the students they serve. At that point, the Lakehead International staff were interested in the potential for strengths and well-being to be studied in an international student population. During the formulation of the project from 2020 to 2022, this author periodically consulted with staff and leadership as to a realistic scope of the study and potential methods of data collection. This consultation continued to the point at which the research project was formally proposed to this author's dissertation committee in June 2022. Immediately following said proposal, staffing changes occurred at Lakehead International and the previously consulted parties were no longer available for discussion; however, the study was conducted as formulated on the basis of prior advice and guidance from Lakehead International. Further comments on the process of developing these relationships and how this process guided both study development and execution can be found in the Discussion.

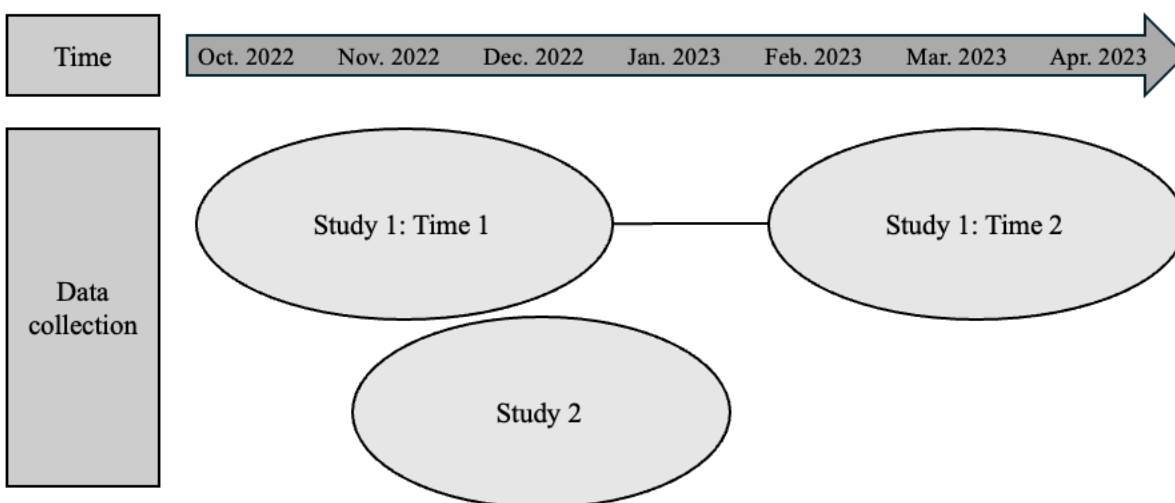
After project formulation and the formal proposal, the rationale and plan for both studies were submitted to the Lakehead University Research Ethics Board for approval. Each of the documents in the Appendices (including survey measures and plans for communication with prospective/actual participants) were included in the submission. The studies received research ethics board approval in September 2022.

### Data Collection Timeline

Study 1 took place at two timepoints during the academic year. Study 2 took place in between the two timepoints of Study 1. The timeline of data collection is illustrated in Figure 1. The interval between data collection points ranged from 2 months, 23 days to 5 months, 12 days, with an average interval of 3 months, 21 days.

### Figure 1

*Timeline of Data Collection for Study 1 and Study 2*



### Recruitment Strategy

Initial recruitment for Study 1 took place in Fall 2022 through three avenues. First, the study was posted on Lakehead University's SONA system. SONA is an online research recruitment tool that allows student researchers to offer students credit toward an undergraduate psychology course in exchange for participation in research. Prospective participants are able to browse the SONA site for research projects of interest and sign up to participate either through scheduling to meet in person, or (as in the case of the present project) at a convenient time by completing questionnaires online. Participants recruited through this means were taken directly from the SONA website to the survey site upon indicating their interest in participation (see

Appendix A for the study description displayed on SONA). Second, posters were distributed to bulletin boards around the Lakehead University Thunder Bay campus for viewing by students (see Appendix B). These posters encouraged prospective participants to determine their eligibility through the SONA system; if they were not eligible to receive course credit through SONA, they were able to directly access the survey via QR code. Third, advertisements for the survey were distributed via the Lakehead University Student Union (LUSU) newsletter with a short statement containing identical information to the recruitment posters, and direct links to access the survey.

At Time 1, the initial information letter specified the two-part nature of the study and indicated that participants would be contacted for further participation in February 2023. Participants were asked to provide their Lakehead University email address within the initial demographics questionnaire in order for their responses between the two times to be linked. Each prospective Time 2 participant was emailed links to determine their SONA eligibility, or to access the survey directly, in February 2023. Survey completion was consistently monitored to determine the Time 1 participants who had not yet participated at Time 2. Three subsequent reminder emails were sent to those who had not yet completed the Time 2 survey throughout the winter term, with the final reminder being sent in April 2023.

At both data collection points, the demographics questionnaire at the beginning of the survey asked for participants to provide their Lakehead University email addresses. Though the collection of participant email addresses does not allow for data to remain anonymous, it was advantageous in this context for three reasons. First, it allowed for easy contact of participants at Time 2 regardless of recruitment source. This was particularly important given that a portion of the participants enrolled in the study through SONA. Participants may have differed in their

eligibility to obtain course credit at Times 1 and 2, and thus were given the opportunity to participate through SONA at either time if this was applicable to them. When participants were contacted via email at Time 2, they were provided with links to access the survey directly if they were not eligible for course credit, as well as a link to the SONA system where they may participate for course credit if applicable. Second, it allowed for easy contact with international students to arrange for interviews, for those who indicated that they wish to be contacted for said portion of the study. Third, it was an easy way to link data at Times 1 and 2, as well as with interview data, which minimized the potential for error in data matching. Potential participants for Study 2 were recruited from the pool of international student participants who completed the Study 1 survey at Time 1. When completing the initial demographics questionnaire and indicating their registration status (i.e., either international or domestic student), international students indicated if they wished to be contacted to participate in Study 2. Those who indicated interest were contacted via email and, upon providing confirmation of interest, were scheduled for a one-hour interview with this author.

## **Participants**

### ***Study 1 Sample***

Prior to recruitment, necessary sample size was estimated using G\*Power for the analysis requiring the most participants. Given that there is little guidance in the already sparse literature in this area as to a recommended effect size, a cautious estimate of  $d=.15$  was chosen. Power level was set at  $1-\beta=.8$ , significance level at  $\alpha=.05$ , and a two-tailed test was chosen. Assuming three covariates (ego strengths, psychosocial strengths, and strengths use) in a groupwise comparison (international and domestic students), the required sample size is estimated at  $N=269$ . This would require recruitment of at least 135 international and 135 domestic students at

both collection points. The recruitment goal for the overall sample was met; however, the recruitment goal for the individual categories of enrolment status was not. Further details and implications of the failure to meet this goal are provided in the Results and Discussion sections.

A total of 358 participants (age  $M = 23.03$  years,  $SD = 7.140$ , range 18-61) contributed data at Time 1. Of these, 159 participants (age  $M = 23.75$  years,  $SD = 7.66$ , range 18-61) returned to contribute additional data at Time 2. The mean number of years in university was  $M = 2.22$  ( $SD = 1.199$ ) at Time 1 and  $M = 2.59$  ( $SD = 1.175$ ) at Time 2. Regarding compensation for participants' time,  $n = 320$  received course credit through the SONA system at Time 1, with  $n = 142$  receiving credit at Time 2. The demographic characteristics of the participants at each time are detailed in Tables 1 and 2. The majority of the participants at both times were White/European, female, domestic students, completing undergraduate studies (most commonly first year at Time 1, and second year at Time 2), and having their education funded by themselves/their families and/or student loans. Participants were able to select multiple options for the questions inquiring about cultural background and sources of educational funding.

### ***Study 2 Sample***

As noted, a subset of international students volunteered for the qualitative interview portion of the study. A total of 13 international students participated. Complete participant demographics can be found in Tables 3 and 4. The majority of participants were female, completing undergraduate studies (most commonly first year), working during their studies, and having their education funded by themselves/their families. Participants represented a diversity of ethnic backgrounds (including Black; South, East, and West Asian; and Latin American).

For the qualitative analysis, no standard guidelines exist regarding determination of adequate sample size. In discussions of thematic saturation, the lowest number of interviews

suggested is around 10 (Vasileiou et al., 2018). However, extracting more nuanced information from the data may require more interviews. Analysis that takes place concurrently with data collection is also a technique that is aligned with the aforementioned PAR methodology as it allows for the project to be refined as data and information is gathered (Langlois et al., 2014).

Consequently, an assessment of saturation was carried out after 10 interviews had been completed, where saturation was determined as no new codes having been identified in subsequent interviews. Thus, the 10 interview transcripts were analyzed for themes and coded by this author concurrently with data collection, with a full review of each transcript being undertaken as new coding was identified in subsequent interviews. As new codes were identified in the transcript of the tenth interview, subsequent interviews were undertaken. No new codes were identified in the transcripts of interviews 11, 12, or 13, at which point it was agreed between this author and her supervisor that thematic saturation had likely been reached. Collection of interview data ceased at that point. Further details on the qualitative analysis process can be found below in the Results section.

### **Quantitative Measures (Used in Study 1)**

Quantitative data was collected using a series of self-report measures. Each participant began by providing basic demographic information (see Appendix C) before completing the following measures. Descriptive statistics for each of the measures and relevant subscales therein can be found in Tables 5 and 6.

#### ***Strengths Assessment Inventory – Post-Secondary***

Psychosocial strengths were measured using the Strengths Assessment Inventory – Post-Secondary (SAI-PS; Appendix D). Fifteen strength domains (Family, Friends, School, Free Time, Self-Knowledge, Healthy Lifestyle, Being Involved, Faith and Culture, Goals and

Dreams, On the Job, Relationships/Significant Other, Coping While Attending University, Time Management/Planning, Engaging with Others, and Parenting; see Table 5) are assessed with this measure, with each domain being assessed consecutively. For instance, each participant would be shown the 11 items related to Strengths with Family, followed by the 14 items related to Strengths at School, then the 17 items related to Strengths During Free Time, and so on. Each of the 142 scale items are measured on a 3-point Likert scale (labelled as “Not at all”, “Sometimes”, or “Almost always”) indicating how much the statement in each respective item applies to them. Respondents may also indicate that an item does not apply to them (which was coded as “0”, in the same way as a “Not at all” response), and have the opportunity to leave a comment following each domain to provide any context for their responses.

Following completion of the SAI-PS, the mean score for each subscale can be calculated for each individual. The maximum numerical value among these means represents the “signature strength magnitude” for that individual, as it is the highest value among all of the strengths assessed. It also allows for individuals to have as many signature strengths (i.e., SAI-PS subscales which reached their personal maximum value) as is relevant to them. For example, an individual may have a maximum SAI-PS subscale score of 1.50, and have obtained a mean score of 1.50 on each of the subscales Family, Friends, and Relationships/Significant Other. For that individual, those subscales would represent their signature strengths, and 1.50 would serve as their signature strength magnitude value. The use of signature strength magnitude as a proxy for psychosocial strengths is warranted here, as it allows for comparisons in the respective highest level of strengths to be made between participants who may have different numbers of signature strengths (i.e., the magnitude value can still be used regardless of how many signature strengths an individual possesses). It also allows for these comparisons regardless of which subscales

reach the individual's maximum value on the SAI-PS, and therefore which domains are considered to be that individual's signature strengths.

The SAI-PS has been used in research with university students during this author's Master's thesis project (Harder, 2020). In that study, reliability for the individual strength domain scales ranged from  $\alpha=.70$  to  $\alpha=.99$ , which is considered acceptable overall. The measure also displayed acceptable amounts of convergent validity with measures of character strengths and well-being, as well as discriminant validity with measures of depression and anxiety. Though this measure has not been used extensively in past research, an aim of the present study is to further validate SAI-PS with individuals from a wide range of cultural backgrounds (i.e., domestic and international students living in Canada). Descriptive statistics for each of the individual strength domain scales in the present study can be found in Table 5. Reliability estimates for the total sample, domestic student subsample, and international student subsample were calculated using Cronbach's alpha. Total reliability ranged from  $\alpha=.69$  to  $\alpha=.98$  at Time 1 and  $\alpha=.70$  to  $\alpha=.99$  at Time 2. The majority of overall alpha values range from acceptable to excellent, with two values (Strengths with Time Management, and Strengths in Engaging with Others, each at Time 1) falling only slightly outside of the acceptable range; thus, they are still considered here. It is noted that alpha values for international and domestic students varied somewhat on this measure. However, no subscales were excluded on this basis as there did not appear to be a bias toward unreliability for either group, and no hypotheses involving groupwise comparisons were tested.

### ***Strengths Use Scale***

The Strengths Use Scale (SUS; van Zyl et al., 2021; see Appendix E) was presented directly following the SAI-PS to assess participants' engagement in their psychosocial strength

areas. Participants were prompted to keep the strength domains about which they had just answered questions in mind during their completion of the SUS. The SUS contains 14 items measured on a Likert scale of 1 (“strongly disagree”) to 7 (“strongly agree”). A mean score is calculated to represent an individual’s overall engagement with their strengths; in the present study, specific engagement in psychosocial strengths was represented by the mean score. In development, the SUS displayed high levels of internal consistency ( $\alpha=.95$ ; van Zyl et al., 2021), criterion validity (as assessed by dedication to one’s studies), and test-retest reliability (with similar scores emerging at a three-month retest interval). Van Zyl and colleagues’ (2021) recent study established that the measure continues to display these properties in a sample of university students. In the present study, acceptable overall reliability was found at the level of  $\alpha=.96$  at both Times 1 and 2.

### ***Psychosocial Inventory of Ego Strengths***

Ego strengths were measured with the 32-item version of the Psychosocial Inventory of Ego Strengths (PIES; Markstrom et al., 1997; see Appendix F). Items are measured on a 5-point Likert scale (from 1 = “does not describe me well” to 5 = “describes me very well”). Subscales on this measure reflect the eight Eriksonian ego strengths that are thought to emerge throughout the lifespan (hope, will, purpose, competence, fidelity, love, care, and wisdom). Mean scores on the measure as a whole, as well as each subscale, are calculated to represent overall ego strength and each individual ego strength respectively. Two items on each four-item subscale are reverse scored. Internal consistency for the 32-item version of the PIES was  $\alpha=.91$  during development, with individual subscales being reported as having “acceptable to very good” internal consistency (Markstrom et al., 1997). The scale was also reported to have established convergent validity with related scales.

During the present study, internal consistency for overall ego strengths emerged at  $\alpha = .89$  at Time 1 and  $\alpha = .91$  at Time 2. However, internal consistency ranged quite significantly between subscales. Hope was the only domain that emerged within the acceptable range of reliability at both times ( $\alpha = .73$  Time 1; and  $\alpha = .77$  Time 2), while internal consistency for the domains of will, competence, fidelity, love, and wisdom were not deemed acceptable at either Time 1 (with values ranging from  $\alpha = .49$  to  $\alpha = .65$ ) or Time 2 (with values ranging from  $\alpha = .56$  to  $\alpha = .68$ ). Further, the domain of purpose reached an acceptable level of reliability at Time 2 ( $\alpha = .77$ ), but did not do so at Time 1 ( $\alpha = .65$ ). Therefore, only the values for overall ego strength and the strength of Hope are included in the analysis.

### ***Well-Being Scale***

The Well-Being Scale (WeBS; Lui & Fernando, 2018; see Appendix G) was used to measure global well-being, as well as financial, physical, social, eudaimonic, and hedonic well-being. This measure consists of 29 items rated on a Likert scale of 1 (“Strongly disagree”) to 6 (“strongly agree”). During its initial validation with an undergraduate college sample, the WeBS demonstrated overall internal consistency of  $\alpha = .92$ . The subscales ranged from  $\alpha = .79$  to  $\alpha = .85$  in internal consistency. The measure also displayed convergent validity with other measures of satisfaction with life, and discriminant validity with measure of depression and anxiety. Similar associations were found in this author’s past research (Harder, 2020). In the present study, the overall internal consistency was  $\alpha = .94$  at Time 1 and  $\alpha = .93$  at Time 2, while internal consistency for individual subscales ranged from  $\alpha = .83$  to  $\alpha = .88$  at Time 1 and  $\alpha = .80$  to  $\alpha = .88$  at Time 2 (see Table 6 for alpha values by subscale, for domestic and international students respectively). Scores for global well-being, as well as each of the five facets of well-being, are utilized in the study’s initial correlation analyses. Though the subscale scores are not utilized

outside of these correlations, they were calculated as part of the larger program of research of which the present project is a part.

### *Resilience Scale for Adults*

Resilience was measured using the Resilience Scale for Adults (RSA; Friborg et al., 2005; Appendix H). This scale measures overall resilience, as well as six facets of the construct (perception of self, perception of future, structured style, social competence, family cohesion, and social resources). Thirty-three items are measured on a 5-point scale with a positive attribute on one side of the scale, and a negative attribute on the other. Different attributes are utilized for each item; for example, the item “My plans for the future are...” is rated from “difficult to accomplish” to “possible to accomplish,” and the item “Events in my life that I cannot influence...” is rated from “I manage to come to terms with” to “are a constant source of worry/concern.” Several items within the scale are reverse-scored, with an overall mean score indicating greater resilience (either overall, or corresponding to the respective subscales accordingly). This scale has demonstrated acceptable reliability ( $\alpha=.76$  to  $\alpha=.87$  for the subscales) and convergent validity with related measures (e.g. emotional stability, social intelligence). During the present study, overall internal consistency emerged at  $\alpha=.92$  at Time 1 and  $\alpha=.90$  at Time 2, while internal consistency for the majority of the individual subscales fell within acceptable limits (ranging from  $\alpha=.76$  to  $\alpha=.87$  at Time 1; and  $\alpha=.75$  to  $\alpha=.86$  at Time 2. The exception was the structured style scale, which fell at  $\alpha=.69$  at Time 1 (which is considered just slightly below the “acceptable” range), and  $\alpha=.65$  at Time 2 (which is firmly within the “questionable” range. The Structured Style subscale was therefore excluded from analyses, though the items included in this scale were kept in the calculation of the total score given the acceptable reliability of Global Resilience at both times. Individual alpha values for the

remaining subscales (for domestic and international students, respectively) can be found in Table 6. As with the WeBS, the RSA subscale scores were only used in the present project's initial correlation matrix. These subscale scores were calculated, however, as part of the larger program of research to which the present project belongs.

### ***Perceived Stress Scale***

Participants completed the Perceived Stress Scale (PSS; Cohen et al., 1983; Appendix I) to assess the frequency of stressful feelings and life events over the preceding month. Fourteen items are measured on a Responses are given on a 5-point frequency scale from 0 (“never”) to 4 (“very often”), with six items being reverse-scored. A mean score is calculated to represent overall perceived stress within the past month. Measure development produced acceptable reliability ( $\alpha=.84$  and  $\alpha=.85$  in two college samples) and validity for use in research. The PSS has also been utilized with diverse samples, including use with university students, and has been deemed to be widely valid (e.g., Cohen et al., 1983; Gill et al., 2018; Lee 2012; Zhuang et al., 2021). Overall internal consistency was also acceptable during the present study ( $\alpha=.88$  at Time 1 and  $\alpha=.89$  at Time 2).

### ***College Adjustment Questionnaire***

The College Adjustment Questionnaire (CAQ; O'Donnell et al., 2018; Appendix J) was used to assess overall functioning within the university environment. Global adjustment can be calculated from the overall mean score, as well as subscale scores for educational, relational, and psychological functioning. Fourteen items are measured on a 5-point Likert scale from 1 = “very inaccurate” to 5 = “very accurate.” The scale has demonstrated acceptable reliability for use in research, with internal consistency scores ranging from  $\alpha=.79$  to  $\alpha=.89$  for the subscale scores. Scores on this measure are also positively correlated with previously established measures of

college adjustment, indicating a high level of validity. Internal consistency was also acceptable during the present study ( $\alpha=.87$  at Time 1 and  $\alpha=.88$  at Time 2).

### **Interview Guide (Used in Study 2)**

Study 2 involved oral interviews with international students. Interviews ranged from 18 minutes, 30 seconds to 61 minutes, 32 seconds, with an average duration of 35 minutes and 10 seconds. A copy of the questions which guided the resulting semi-structured interviews can be found in Appendix K. These questions were selected from Owens et al.'s (2018) interview protocol about the development of strengths over the lifespan. Thus, participants had the chance to identify changes in the presentation of their strengths throughout their childhood, adolescence, and emerging adulthood, with a special focus on how these strengths have manifested during their current university experience (i.e., since enrolling as an international student). These changes may include the source of this strength in their lives (e.g., extrinsic vs. intrinsic motivation), the frequency with which they utilize their strengths, or how important difference domains have been for them at different times.

### **Procedure**

#### ***Study 1 Procedure***

Study 1 involved the collection of quantitative data, which were collected online using SurveyMonkey. At Time 1, beginning in October 2022, students wishing to participate in the study were directed to the survey site. Prospective participants were shown an information letter (Appendix L) and given the opportunity to provide their informed consent for study participation. The measures were then presented to the participants. At each Time period, participants were presented with all of the questions detailed in the Measures section (i.e., Strengths Assessment Inventory – Post-Secondary; Strengths Use Scale; Psychosocial Inventory

of Ego Strengths; Well-Being Scale; Resilience Scale; Perceived Stress Scale; and College Adjustment Questionnaire; see Appendices A through H). For all participants, the SAI-PS was presented first, followed by the Strengths Use Scale. The Strengths Use Scale specifically asks participants to reflect on their strengths when completing the measure. Thus, presenting this measure directly after participants had been asked questions about their psychosocial strengths with the SAI-PS provides participants with an immediate reference point (i.e., the various domains of the SAI-PS) to keep in mind. The remainder of the measures were then presented in a randomized order to reduce potential bias in data collection. Following completion of the measures listed above, participants were thanked for their time and shown a debriefing form with additional information about the study (see Appendix M).

At Time 2, beginning in February 2023, students were contacted via email (see Appendix N) and invited to participate in the study for a second time. Participation was tracked such that those previous participants who had not yet completed the surveys at Time 2 were contacted up to two additional times at three-week intervals as reminders. Prospective participants following the link contained the email were led through a similar consent, data collection, and debriefing process as at Time 1.

### ***Study 2 Procedure***

As noted, international student participants who completed the quantitative portion of the study were invited to take part in a qualitative portion as well. This qualitative data collection comprised Study 2. Qualitative data were collected using semi-structured interviews between November 2022 and January 2023 (i.e., between Times 1 and 2 of quantitative data collection). The student researcher then contacted the prospective participants via email to arrange for the scheduling of an interview either in person ( $n = 9$ ) or via Zoom ( $n = 4$ ) (according to participant

preference and to maximize participant comfort and accessibility). Prospective participants were given an information letter to review and sign (either in person, or digitally and returned to the student researcher via email; Appendix O). Following the interview, were participants presented with a debriefing letter with further information about the study and the researchers' contact information (Appendix P). In keeping with standards for qualitative data collection, each interview participant was provided with a \$15 cash honorarium for approximately one hour of their time.

Interview questions were guided by the responses to the SAI-PS at Time 1 of Study 1, such that the strengths discussed in the interview were those endorsed as being signature strengths (i.e., those domains which were most highly endorsed). This was a flexible approach which allowed for each participant's signature strengths to be discussed, regardless of the number of signature strengths each participant possessed. It also allowed for participants to speak about the context surrounding the development of their strengths with their signature strengths as a concrete reference point, as opposed to merely answering general questions about their "strengths." This decision was made so as to limit the scope of the interviews to those areas of life measured by the SAI-PS. The interview data was manageable and this author could have confidence in herself and the participants' possession of a mutual understanding of what "strengths" are in this context.

### **Study 1: Quantitative Data Analysis and Results**

Analyses using study 1 data were conducted using SPSS v29.0.

#### **Initial Data Cleaning and Preparation**

It was determined that primarily data gathered at Time 1 would be used to conduct each analysis. This was done in order to maximize potential findings given the relatively small sample size at Time 2. The only exception to this analysis decision was to include Time 2 variables where they were specifically called for within the research question or hypothesis. Mean imputation for individual responses on each respective scale was used to adjust for missing data for participants missing fewer than 10% of data points for each scale; participants for whom more than 10% of data were missing were excluded from analyses using those specific variables.

#### **Initial Correlational Results**

A bivariate correlation using pair-wise comparisons was carried out between signature strengths magnitude, strengths use, ego strength variables, well-being variables, resilience variables, perceived stress, and adjustment to university at both times. Correlations between signature strengths magnitude, strengths use, and other variables of interest are displayed in Table 7 (global scores for each of the other variables of interest), Table 8 (global well-being and subscales), and Table 9 (global resilience and subscales). Though some redundancies (i.e., repeated statistics) exist between these tables, results are displayed in this way for ease of viewing. In all cases, Time 1 correlations appear below the diagonal, and Time 2 correlations appear above the diagonal.

Nearly all correlations were significant. All significant correlations also emerged in the expected directions based on findings from past research. Notably, signature strengths magnitude was positively associated with each of strengths use, ego strengths, well-being, resilience (with

the exception of the RSA social competence subscale, as displayed in Table 9), and university adjustment. Strengths use was also positively associated with each of the other variables of interest. Both signature strengths magnitude and strengths use were negatively associated with perceived stress. Further explanations of the specific correlations of interest are presented within the sections related to each respective hypothesis below.

**Hypothesis 1: Investigating the inter-relationships between psychosocial/ego strengths, well-being, resilience, university adjustment, and perceived stress**

The initial correlation analysis was used as a preliminary investigation into the relationships between these variables. As displayed in Tables 7, 8, and 9, significant relationships were observed among the majority of these variables, and in the expected directions (for example, significant positive correlations emerged between signature strengths magnitude and each of the well-being variables at each Time, while significant negative correlations were observed between signature strengths magnitude and perceived stress at each Time; see Table 7). Given the overall congruence between the expected and the observed correlations, the decision to proceed to further analysis was made. It was also noted that the variables of interest were determined to be non-colinear. Due to the unreliability of many of the individual ego strength subscales as measured by the PIES, global ego strength and the ego strength Hope were the only ego strength-related variables included in these analyses.

Prior to the further analysis, assumptions were tested to ascertain the validity of performing a regression with the data. Upon examination of the outcome variables (well-being and adjustment to university), it was determined that they were normally distributed via Shapiro-Wilk tests (which were non-significant at  $p > .05$ ). An assumption of linearity was met based on the examination of scatterplots of the variables and their residuals. Boxplots and identification of

extreme values were analyzed for outliers. Three outliers with signature strengths magnitude scores more than three standard deviations below the mean were identified (one at Time 1, and two at Time 2). These values were Winsorized by moving them within the identified acceptable range, while still retaining their tendency either above or below the mean value.

Hierarchical linear regressions were used to address the following hypothesis (H1): “signature strengths magnitude and ego strengths will be positively associated with well-being and adjustment to university at time 2, when controlling for the contribution of perceived stress to this relationship.” Results from these analyses are displayed in Tables 10 and 11.

In Model 1 (see Table 10), global well-being at Time 2 was entered as an outcome variable in order to capture overall well-being across the measured subscale domains. Perceived stress at Time 1 was entered in step 1. Signature strength magnitude and global ego strengths at Time 1 were included in step 2. Model 1 contained two steps, and was significant at the  $p \leq .001$  level,  $R^2 = .229$ ,  $F(3,139) = 13.749$ . Of the variables included in step 2, global ego strengths at Time 1 was a significant predictor, while perceived stress and signature strengths magnitude at Time 1 were not.

In Model 2 (see Table 11), university adjustment at Time 2 was entered as the outcome variable. As with the previous model, perceived stress at Time 1 was entered in step 1, while signature strength magnitude and global ego strengths at Time 1 were included in step 2. Model 2 contained two steps, and was significant at the  $p \leq .001$  level,  $R^2 = .340$ ,  $F(3,139) = 23.835$ . Of the variables included in step 2, global ego strengths and perceived stress at Time 1 were significant predictors, while signature strengths magnitude at Time 1 was not.

In sum, Hypothesis 1, that psychosocial and ego strengths would be significant predictors of well-being and adjustment to university at Time 2 over and above the variance accounted for

by perceived stress, was partially supported. With the significance of the entire model (with both signature strengths magnitude and ego strengths included), and the individual significance of ego strengths, only ego strengths make a significant and meaningful contribution in explaining post-secondary students' global well-being and university adjustment.

**Hypothesis 2: Investigating the relationships between signature strengths magnitude, strengths use, and well-being**

The initial correlation analysis was used as a preliminary investigation into the relationship between these variables. As displayed in Table 8, significant positive correlations were observed in each of these relationships at Time 1 and Time 2. Signature strengths magnitude was positively correlated with strengths use ( $r = .44$  at Time 1,  $r = .37$  at Time 2; both  $p < .01$ ) and global well-being ( $r = .44$  at Time 1,  $r = .36$  at Time 2; both  $p < .01$ ). Strengths use was also positively correlated with global well-being ( $r = .65$  at Time 1,  $r = .37$  at Time 2; both  $p < .01$ ). Given the congruence between the expected and observed relationships, further analysis using these variables was subsequently conducted.

The PROCESS macro for SPSS was used to address the following hypothesis (H2): “strengths use will moderate the relationship between signature strengths magnitude and well-being, such that the association between signature strengths magnitude and well-being will be greater with higher strengths use, and less with lower strengths use.” This type of model was chosen to ascertain the contribution of strengths use to the relationship between signature strengths magnitude and global well-being. Two moderation models (one including the variables of interest at each time, respectively) were constructed with signature strengths magnitude as the predictor, well-being as the outcome, and strengths use as a moderating variable. Results can be found in Table 12.

At Time 1 (see Table 12), the model was significant overall, with the independent variable (signature strengths magnitude) and the moderator (strengths use) explaining 44.9% of the variance in the outcome (well-being),  $R^2 = .449$ ,  $F(3,334) = 90.858$ ,  $p < .001$ . The interaction between signature strengths magnitude and strengths use did not account for a significant portion of the variance. The coefficients did not indicate a significant effect of signature strengths magnitude or strengths use (either independently or as an interaction) on well-being. In sum, while the total model is significant, none of the individual predictors produce an impact on the outcome. This suggests that the combination of these variables is required to observe significance, rather than any of the variables on their own.

Similar results were found for the variables of interest at Time 2 (see Table 12). The model was significant overall, with the independent variable (signature strengths magnitude) and the moderator (strengths use) explaining 47.4% of the variance in the outcome (well-being),  $R^2 = .474$ ,  $F(3,147) = 44.143$ ,  $p < .001$ . The interaction between signature strengths magnitude and strengths use did not account for a significant portion of the variance. The coefficients did not indicate a significant effect of signature strengths magnitude or strengths use (either independently or as an interaction) on well-being. Again, the total model being significant suggests that the combination of the variables account for significant variance in the model, while the individual variables do not account for significant variance on their own.

Overall, data from both Times 1 and 2 do not support Hypothesis 2. The results indicate that strengths use does not moderate the relationship between signature strength magnitude and well-being, as none of the individual pathways nor the interaction between strengths use and signature strengths magnitude yield significant results. This suggests that the impact of each of the individual predictors on the outcome is non-significant.

**Hypothesis 3: Investigating the associations between psychosocial strengths, well-being, ego strengths, resilience, and perceived stress**

Bivariate correlations were used to address the following hypothesis (H3): “signature strengths magnitude will be positively associated with well-being, ego strengths, resilience; and negatively associated with stress.” The correlations between signature strengths magnitude, strengths use, and the other variables of interest can be viewed in Table 7 (for correlations with global well-being, global ego strengths, global resilience, and perceived stress), Table 8 (for correlations with global well-being and each of the well-being subscales), and Table 9 (for correlations with global resilience and each of the resilience subscales). The majority of these correlations were in the expected direction and significant at the  $p < .01$  level at both Times. The exceptions to this were the respective Time 2 correlations between signature strengths magnitude and RSA perception of self ( $r = .18$ ) and perceived stress ( $r = -.16$ ), which were significant at the  $p < .05$  level.

Further, the relationship between strengths use and RSA social competence at Time 2 ( $r = .08, p > .1$ ) was non-significant. However, there was a significant relationship observed between strengths use and RSA global resilience ( $r = .63$  at Time 1,  $r = .64$  at Time 2; both  $p < .01$ ). Therefore, Hypothesis 3 was generally supported, as signature strengths magnitude was significantly associated with the majority of the other variables of interest, and in the respective expected directions.

**Further Investigations: Differences between international and domestic students on well-being and adjustment to university**

While the goal of total number of participants was met, the goal detailing specific numbers of international and domestic students was *not* ultimately met due to the number of

international students who were available to be recruited from Lakehead University. The failure to meet this recruitment goal meant that the exploratory analyses involving comparisons between international and domestic students could not be completed. This is due to the subsample sizes not allowing for enough power to produce statistically viable results. Challenges with and barriers to meeting the recruitment goal, as well as the implications of this missing analysis from the present project, are further explicated in the Discussion.

### **Study 2: Qualitative Data Analysis and Findings**

The interview data was analyzed using NVivo software (v14.23.2). Interviews were audio recorded and transcribed with extensive review and comparison of recordings and transcripts carried out prior to data analysis. A reflexive thematic analysis approach, as per Braun & Clarke (2021), was used in analysis. Such an approach was chosen because it is based on the acknowledgement that a researcher analyzes qualitative data in a way that inherently reflects their own worldview, expectations, and knowledge of related research, regardless of their attempt at neutrality. This approach also acknowledges that themes do not necessarily “emerge” from the data, as if the themes are an inherent quality of the responses themselves. Rather, it posits that the meaning that is made of the data is but one way of interpreting complex interactions between a researcher and their participants. Reflexive thematic analysis also does not necessitate inter-rater reliability in coding, as it does not assume that the contents of the data have subjective meanings in and of themselves. Such an approach was essential given that this author had sole responsibility for constructing the interview based on past research, recruiting participants, conducting the qualitative interviews, transcribing the interviews from audio recordings, and analyzing the data. Reflexive thematic analysis therefore gives the space for acknowledgment of this author’s own biases and assumptions throughout the research process.

Thus, data collection and interpretation commenced. Initial data analysis took place concurrently with data collection. The concurrent analysis was undertaken so as to determine the sample size necessary for thematic saturation, as detailed above. The steps of reflexive thematic analysis (Braun & Clarke, 2021) were undertaken as follows, with examples from the analysis:

1. Data familiarization. This was done through the transcription process, during which the student researcher listened to the audio recordings and edited the generated transcripts to assure transcript accuracy.
2. Systematic data coding. Codes were generated based on type of signature strength (e.g., strengths with family), trajectory of strength development (e.g., strongest after beginning university as an international student), sources of strength (e.g., supportive family members), and other emergent topics of conversation within the interviews (e.g., feeling as though one does not have time to engage in some of their strength areas).
3. Generating initial themes from coded and collated data. Initial themes were generated by integrating related themes based on meaning (e.g., an initially identified theme was “service to others”).
4. Developing and naming themes. This involved further consideration of the meaning behind each generated theme, and resulted in some themes being changed or expanded upon in their definition (e.g., the aforementioned theme of “service to others” became “Strengths often exist in the context of service to others”). Theme development and naming continued as the student researcher continued into Step 5 of analysis.
5. Refining, defining, and naming themes. At this time, an integrated view was taken of the themes as a whole. This helped to determine whether some themes were best described as subthemes under the umbrella of other, larger themes (e.g., “Strengths exist in the context of service to others,” along with several other previously identified themes, was determined to be a subtheme of “Psychosocial strengths exist

within the context of an individual's relationships." These two themes were previously categorized as being in the same level of the hierarchy of themes).

6. Writing the report. Final identified themes (including larger overarching themes and smaller subthemes within these) are summarized in Table 13 and detailed here.

Where quotes are provided, they are attributed to participants based on the order in which they were interviewed (e.g., P1 for the first interview participant, P2 for the second, and so on).

Where ellipses indicate edits to quotations, edits were made in the interest of clarity, grammatical correctness, and deidentification of statements.

## **Findings**

### ***Theme 1: Psychosocial strengths exist within the context of an individual's relationships.***

Although psychosocial strengths are largely conceptualized as being individual in nature, the relational context in which one gains awareness of, enacts, and develops their signature strengths play a large role for the participants. This was especially apparent when considering signature strengths that inherently involve relationships, such as strengths with family, friends, with significant other, and engaging with others. The majority of participants cited various relationships as being central to the lives and well-being. For example, P4 stated:

"I really value friendships because everytime [sic] there will be someone with me who can help me with certain difficulties. I think that when I was in my teenagehood [sic], friendship was like my major strength. Later on, I would look to my dad. My dad was the person I would go to, and now, it's my mom."

Participants also spoke to the ways in which the relationships with important people in their lives resulted in an increase in other signature strengths. The majority of participants cited

important others as being inspirational, such as when P9 described their mother as having influenced their strength with engaging with others. They said,

“My mom was a social worker. She used to help old-aged people with like daily activities, taking them to the hospital and stuff like that. So that’s when I started helping like old people since my mom, my mom didn’t [...] get paid or anything. She just did it for the sake of doing it.”

Another common theme was participants only becoming aware of their own strengths when their loved ones identified them, and subsequently having their strength develop when they were encouraged and supported. This was a common comment when referencing strengths with school, such as when P9 stated, “My teachers, some of my guardians, and my relatives and stuff they really helped me [...] get to that potential. They knew that I had that potential in me and they helped me use it. I definitely didn’t [do it] all on my own.”

Throughout accounts of strengths focused on relationships, a theme of service to others arose consistently. Personal responsibility in relationships and duty to others was often referenced, such as P13’s assertion that “my family’s [happiness] is my goal.” However, participants also spoke about the value of helping other people through their struggles, regardless of whether these others were well-known to them. P11 described the Lakehead international student community as “a group support[ing] each other, like giving their effort to make a combination [for everyone].” Similarly, P12 described their experience with volunteering with the food resource centre on campus, stating, “During the winter break there is pretty much no food services around campus. [...] this is a human right, we need to find some way to resolve that, even though [campus food services] is not supporting the students on campus.”

There were also several examples of personal strengths developing and increasing in tandem with the strengths of others. This sometimes applied to specific relational strengths; for example, when speaking about their strengths with family, P2 stated that “[My brother and I] have, like you know, built our relationship. Back when we were kids we were really always fighting and stuff. Right now we have each other’s back.” However, this also applied to other, more individual strengths, such as in the case of P12’s strength with self-knowledge. Referring to their mother, they stated,

“We both learn to be better. She wasn’t actually [...] a very good mother back while I was young, but [...] she has reflected on her past self and what she did wrong. And we discussed that a little bit. That kind of discussion had a very good effect on me.”

Finally, participants cited the ways in which time and physical distance from the people in their important relationships changed the nature of their strengths in those areas. In this way, participants saw the international student experience (and the move away from significant others inherent to this experience) played a crucial role in the change. When speaking about their brother, P5 stated,

“We grew up together basically, because he’s like one year younger than me. So as we went our separate ways, when we went to the secondary school, we didn’t have the best relationship. [...] We’re like closer now than we were before. And even my other siblings now. I think I’m closer to them now, like leaving home.”

They also spoke to the nature of relationships changing with the passage of time, such as their statement that, “Our relationship was not very like, close, like they wouldn’t tell me like very, very intimate things. [It was] more like ‘Do what I tell you to do. Don’t do this, don’t do that.’ It was more like authoritative. But then moving, now I think my immediate brother and I

really have like the best relationship.” P5 associated the change in their relationship with their brother and other siblings with an overall increase in their strength with family.

***Theme 2: International students experience barriers to engaging with their signature strengths within the context of university.***

Participants spoke encountering barriers to full engagement with their strengths. On occasion, their newcomer/international student status presented unique barriers to their use of and engagement with their strengths . For example, when speaking about strengths in coping while attending university, P1 indicated that asking for help from university resources (such as the on-campus food bank) was very difficult for them given the importance of independence and pride in their culture. They stated,

“As an international student community, we have problems reaching out. Getting [...] any kind of support is a show of weakness. So, the food, the mental [health services] [...] I’ve observed that we are hesitating to show our weakness, to the public I would say. I’ve seen this moreso [*sic*] with international students.”

In general, participants perceived both positive and negative aspects of the differences between themselves and Canadian citizens. When speaking about strengths from their goals and dreams, P1 further stated, “I always will be unsatisfied, if I even free myself to give myself a pause, or break, or let myself to not pursue my [dreams]. I will be not as happy as a Canadian person who was born here.” Participants also occasionally shared experiences of overt racism, such as when P4 said,

“Every time I talk to people, even at my work, and people say, ‘I don’t think you’re from [home country].’ It’s like, okay, why? Just curious. [They say], ‘you speak really good.’ It’s like [they’re saying], ‘how?’ I don’t know.”

A sense of “culture shock” and an urge to evaluate habits and values was also commonly cited. Participants appeared to perceive culture shock as a relatively neutral experience that they expected upon moving to Canada, even if they had not foreseen specific experiences of this nature. For example, P5 stated,

“Respect is a very important thing. When you’re talking to your elders, you call them ‘Sister *this*,’ ‘sister *that*,’ respect is very important. Here, I realized I had to call older people like by their name, which was like a culture shock. It wasn’t something I was used to.”

Participants also spoke to other barriers to engagement with strengths that were not specific to their international student status. One barrier to engaging with strengths in coping while at university was labelled as “imposter syndrome” by several participants, though they contextualized this as more related to being new to the university context than their international student status. Frequent experiences of social comparison were also related, such as when P3 relayed insecurity about the social consequences of academic achievement. They stated, “I think smart people just have more friends,” citing a reciprocal effect of difficulty engaging in both strengths with friends and strengths at school.

***Theme 3: The manifestation of signature strengths can vary widely depending on the context of an individual’s current circumstances.***

Several of the questions in the interview related to the ways in which participants perceived their strengths as changing over their lifespan. Participants frequently spoke to how changing life circumstances and contexts affect the way they use their strengths. In particular, all participants stated that strengths they have possessed over the course of their lives have been applied differently at different life stages. P10 stated that although their strength with goals and

dreams had led them to pursue a specific program of study, their goals had become much more general over time. They said,

“Now that I’m [at Lakehead] I have to look for a new goal. I think graduating [will be] a high note, and I’ll try my best and find a really good job. Other than that, I just want to live a really simple life just having my job, spending time alone. Or with my family if I ever have one. But other than that, I don’t have this concrete goal.”

In reference to their strengths during their free time, P3 said,

“I think children are naturally curious. Me and my siblings, we always like to learn new things, like playing football. Staying at home wasn’t our thing [...] when we were kids. But now I’ve realized that [...] learning new things doesn’t have to mean going out and stuff. I can learn things at home probably, like reading. I need to read a lot [for school]. But I still have to go [out] to fill my needs, like if I want to travel.”

Participants also frequently stated that although they have many strengths which qualify as their “signature strengths,” they must realistically exist in a hierarchy. The transition to emerging adulthood and taking on of responsibilities characteristic of this stage of life was mainly referenced as the cause of this hierarchy. For example, many participants whose signature strengths reflected strengths on the job, as well as strengths during free time, stated that focusing on work over leisure was simply a necessity. Other participants, such as P8, stated that their studies needed to take priority over their relationships, saying, “My studies have become more of a focus for me now. They kind of have to be, right, when [I’m] in such a such a demanding environment. But my family is still an important support in that.” Still others stated that they experienced difficulty maintaining strengths in areas that were previously very important to them. P11 said,

“Yes, I definitely like to go back to doing [artistic hobbies], but I kind of tend to forget that I liked those things. It’s like I have free time in between homework, and I’m like ‘Well, what do I do now?’ and I forget that I can like draw, I can build something. Something like that. It’s like I lost the tradition, the possibility of that activity.”

***Theme 4: The university environment fosters personal development by intrinsically increasing the need for independence, self-knowledge, and accountability.***

A consistent theme of identity development, and subsequent impact on psychosocial strengths, was relayed by the participants. Changes in identity were often associated with changes in the importance or engagement with specific signature strengths. P12, for example, spoke about beginning to specifically concentrate on more socially-oriented strength areas when first moving to Canada. They said, “When I moved here I set my goal to change my social interactions and behavior little bit, because I don’t want to be in my old self, just stay alone with myself and not interacting with people.” Relatedly, another common theme among participants was developing a sense of purpose through engagement with their strengths. This was particularly evident in terms of strengths with school and choosing a career, such as with P8, who stated, “I think for me, [the goal is] learning something which I’m interested in so that I can gain more knowledge, lots of more knowledge than I was a child.”

Furthermore, participants cited many features characteristic of the transition to emerging adulthood. Some of these features appeared to be facilitated by the participants’ move to Canada, which in most cases was done alone (albeit with family support). Participants often referenced a newfound need to hold themselves accountable and achieve their academic goals. When referencing their move away from their family to attend university, P10 said, “Now I can feel this kind of liberty. They let me decide what is wrong and what is right now that I’m older

because they want me to take my own decisions.” A sense of learning how to balance responsibilities was also referenced on several occasions; for example, when referencing their strength with being involved, P11 stated,

“I have participated in fundraising events, but now [I’m not] actively [doing that]. When I have really the chance, I like to do it. I think this strength would be a little bit weaker [than it used to be] because of like [academic] schedules and all that. Now it hasn’t been like for possible to do that because of the schedules.”

Similarly, the idea that studying internationally offers a unique opportunity for independence was endorsed by nearly all participants. In some cases, participants expressed wishing to be financially independent, such as when P2 stated, “My family’s OK with [me not working while in school], but I don’t want that. I want to be independent because since I moved here I’ve never asked for money for myself, and that feels so good.” Other participants reference a more generalized sense of independence. For example, P4 said, “I really wanted to come to Canada because I wanted to lead a life by myself. I want to know how I can manage money, can manage my work, my studies, how I can face some of my fears by myself.” An increase in self-efficacy and mastery was also commonly mentioned, with P7 stating, “So now I’m trying to increase [my confidence] that I can do it, I can get through [challenges] and make things how I want to be,” when referencing strengths from goals and dreams.

***Theme 5: Influences on one’s strength development and the choice to attend university (and/or what subject area should be the focus of study) vary widely and change over time.***

All participants in the interviews spoke about the sources of their motivations to attend university in Canada, as well as the development of their signature strengths. For example, P9

referenced external pressure from family to achieve highly in school in order to qualify for international scholarship, stating,

“So in my teenage [years], I really thought that I could pursue singing and become an artist or something, but I feel like that idea just died ‘cause like, I don’t know, maybe because of family [expectations]. I still kind of blame them for me not being able to do that, but I feel like that’s just not possible anymore.”

By contrast, all participants also referenced motivation to engage with certain of their signature strengths as coming from within themselves. When referencing strengths from their goals and dreams, P5 stated, “Personally I also want to achieve [my goals], so it’s not just what my parents are telling me.” Several participants also spoke about internalization of outside influences, such that motivations expressed by significant others in their lives shaped their own goals and motivations for study. For example, referencing their mother’s influence on their strength during their free time, P8 said,

“She always loved to play the piano, so she just told me that, if you [also play] well, then you can not only achieve your dream, not only achieve your goal. [I would also] sort of help her to make her dream come true. So I just focused on that.”

Still others stated that they were somewhat unsure of the motivations that led them to pursue university education and engage with their signature strengths. When speaking about their university attendance being an expectation within their family and culture, P1 said, “Even if I feel like I do want to [attend university], I’m not sure it is free will.”

When referencing the clarity of their goals for the future, participants varied widely in terms of the specificity of their future plans. Some referenced feeling a lack of direction and

being a student prolonging the time they have to make decisions about their future, such as P1 when they said,

“I can say that [...] the places that I’ve worked in prove to me that I have to stay as a student as long as I can. That’s why I am again a student here. I think I can’t that be an adult in an industry. That [work] experience kind of led me to come here and pursue my higher education.”

By contrast, many participants were clear on what their goals for the future were and how their time at university would help them achieve these goals. For example, P12 stated,

“During this term like I applied for jobs pretty much all around Canada that fit me and my skill set. [...] And yeah, I got several offers. [...] That there is a the first step of my dream, but this is not the end goal.”

There was also wide variation in the trajectory of strength development endorsed by participants when asked specific questions regarding how they view their strengths as changing over time. Notably, all participants had strength areas that did not change when they began their international studies, as well as strength areas that increased as part of their university experience. There was also wide variation in how participants viewed the sources of their strengths. When questioned regarding their perspective on how their signature strengths first emerged, all participants referenced various strength areas as being either modelled (by family members, teachers, or even fictional characters they admired) or as arising for them naturally outside of external influence. Some participants also stated that some of their strengths had simply always been present for them, and that they could not identify a specific source.

***Theme 6: Attention to and engagement with one’s signature strengths provide opportunities for personal growth.***

Participants made frequent allusions to the ways in which awareness of signature strengths has been present in their lives. Many participants were able to articulate the ways in which they had learned skills related to their signature strengths over time. For example, when speaking about their strength with time management, P10 said, “I realized that [procrastination is] bad or that’s not really the best thing to do. I realized that working [on assignments] early actually has its benefits, and I realize how important it is.” Subsequently, participants often expressed pride in their accomplishments, such as when P5 said, “when I was in primary school, whenever the [awards] ceremony came around and I got certain prizes, or certain positions in school... When I see a result like that, that’s when I’m like, ‘OK, I’m doing well.’”

There were also references to both positive and negative aspects of being aware of one’s signature strengths. In fact, when the student researcher brought up certain strength areas, a minority of participants referenced that being an area of weakness for them; their endorsement of that strength area on the SAI-PS was explained as being aspirational. For the majority of participants, however, their endorsement was conceptualised as being based on a genuine reflection of how they see themselves. Some participants referenced seeing life through a strengths lens in general. P6 stated that they came to this perspective over time, saying,

“As time went on, like when I was going through high school, I kind of discovered where my strength was. Actually, I didn’t even really know I had strength anywhere, but it was just that I wasn’t really paying attention [before].”

Some reference was also made to being aware of one’s strengths, but not being able to fully engage with them; for example, when speaking about strength from their faith and culture, P5 said, “Internally, I’m committed to my religion and everything, but then actually practicing it [is

something different].” Barriers to full engagement were largely related to those identified in Themes 2 and 3.

Overall, participants identified a connection between awareness of/engagement with their signature strengths and their overall well-being. Strengths were often referenced as being a source of joy. P4 spoke about their strengths on the job in reference to their part-time job as a barista, stating,

“I was overwhelmed with the joy of it. I’m really a coffee person. I really love the smell of coffee. On the my first day of going to my job, [...] I was there in my dreamland, with the smell of coffee. And I had never had donuts in [my home country], so it was my first time having donuts.”

A sense of self-worth was also gleaned from engagement with strengths. When speaking about their strength from self-knowledge, P10 shared,

“If I made a self-reflection, I’ll say that I am the very best version of myself. So that’s why I don’t think that I can grow a lot more than what I am already am. But who knows, maybe in life that can change, then I’ll become an even better person. But at the moment I’ll just say that I’m the very, very, very best version of myself.”

Finally, participants identified strengths as intrinsically related to resilience. Persistence (either in the face of a specific challenge, or to achieve a specific goal) was a consistent theme in the participants’ accounts of their signature strengths. Speaking about the value of persistence in their life, P12 said,

“There’s this analogy saying that everything is simple but not easy. So there is a very simple rule to do things, like being persistent. They said, you’ll go and just try [your best] to achieve it. You might not get the goal you want, but it will be very close.”

Challenges were also framed as being opportunities for new experiences. When speaking about increasing their strength in coping while attending university, P13 (who moved from their home country to a place in the southern hemisphere to study before enrolling in university in Canada) stated, “This is first year for me. I come from, actually from [another country], not directly from [my home country] and my hometown is never, ever snowing. Everything here is different.”

Challenges also offered participants unique lessons they may not have learned elsewhere. For example, when speaking about their strength on the job, P2 referenced a negative experience they had in a previous position. They stated, “It was my first serving job, so yeah. Now I know what to do, and what not to do, and the kind of environment I want to be in in my job.”

For the majority of participants, strengths as a whole existed in a bidirectional relationship with resilience, wherein strengths were seen both as arising from encountered challenges and as being used as a means of coping with challenges. For example, P7 spoke about a pre-existing strength at school being useful to prepare for a difficult exam, and that strength subsequently increasing as a result of the experience. They stated,

“When I was in [my home country] we have a very important exam in year nine. If you don’t do well in it, you won’t be able to go to high school. So we had to read for classes and actually study more. And it’s important for our futures. So... that’s when it became very important to me.”

The bidirectional relationship also occasionally applied to different strengths, such as when P2 referenced using their strength with school to cope increasing academic demands, and their strength in coping while attending university arising from difficulty adjusting during their first semester. In reference to the former, they stated,

“Since the 8<sup>th</sup> grade I thought like, to [achieve highly] I have to study. So I started paying more attention [...] for [my final exams] I did study like really hard and, I did get like 92%. I believe that was the first time I actually used that strength.”

In reference to the latter, they stated,

“In the start I was like I was so stressed out about like, what is course registration? I didn’t know that, so I emailed student central, and they [connected me with] a program coordinator and advisors. Then I thought, OK now I’m like going with the flow. But I still get stressed every time the semester starts, and I have to register for courses, it’s crazy.”

## **Discussion**

The following discussion reviews the results from Studies 1 and 2. The various results are then integrated to discuss their implications for psychology's understanding of personal strengths and the body of positive psychology literature as a whole. The implications of the findings related to strength development for international and domestic students at universities is then discussed, particularly in the context of international student recruitment in Canada and in Ontario specifically. Finally, limitations of the present study and suggestions for future research directions are explored.

### **Consideration of Study 1 Results**

#### ***Hypothesis Testing and Planned Analyses***

H1 stated that “psychosocial and ego strengths will be positively associated with well-being and adjustment to university at time 2, when controlling for the contribution of perceived stress to this relationship.” Testing for this hypothesis was carried out to assess for contributions of signature strengths magnitude, global ego strengths, and perceived stress, to variance in the respective outcome variables.

H1 was partially supported. With respect to the model including well-being as an outcome, the results suggest that ego strengths make an important contribution to well-being, while psychosocial strengths do not make a significant contribution to well-being when the impact attributed to perceived stress is accounted for. With respect to the model including university adjustment as an outcome, a similar result was found. As in the first model, this result suggests that ego strengths make a meaningful independent contribution to university adjustment, while psychosocial strengths do not when accounting for the contribution of perceived stress to the relationship.

H2, which stated that “strengths use will moderate the relationship between signature strengths magnitude and well-being, such that the association between signature strengths magnitude and well-being will be greater with higher strengths use, and less with lower strengths use,” was not supported. The results do not suggest that use of strengths increases the potential benefits of strengths awareness (as measured by signature strengths magnitude) for well-being, though this does not discount the positive association between strengths use and well-being that were observed.

H3, which stated that “signature strengths magnitude will be positively associated with well-being, ego strengths, resilience; and negatively associated with stress,” was mainly supported, as the majority of the associations were significant and in the anticipated direction. All associations between Time 1 variables emerged in support of H3. All associations between Time 2 variables also emerged in support of H3, with the exception being the association between strengths use and social competence at Time 2. Given that strengths use is positively and significantly associated with global resilience at Time 2, it is likely that social competence represents an aspect of resilience that is simply not associated with strengths use. However, when considering the combined aspects of resilience together, a strong positive relationship with strengths use emerges. This suggests that, overall, higher resilience tends to occur with higher strengths use.

Taking the quantitative findings together reveals several expected results given the previous literature (and as discussed in the introduction to this document). Firstly, the overall positive associations between psychosocial strengths (operationalized as signature strengths magnitude) and other variables of positive valance (as well as the overall negative association between psychosocial strengths and perceived stress) provide evidence of convergent validity for

the psychosocial strengths model. This is in keeping with the associations between psychosocial strengths, well-being, and perceived stress from this author's thesis research (Harder, 2020). It is also consistent with those findings related to other strength models, such as the positive relationships relating ego strengths to well-being observed by Markstrom and Marshall (2007), and Gfellner and Córdoba (2017). Of note, global ego strengths were also positively associated with well-being in the present project.

Furthermore, the psychosocial strengths model, as measured in the post-secondary population by the SAI-PS, appears to be a valid way to measure personal investment and strength in various domains of life. Furthermore, consideration of these domains within a single model appears valid based on these results. This is an important finding given that previous studies have typically focused on individual domains of strength, as opposed to all potential strengths relative to one another. For example, Abdel-Khalek (2010) and Peter et al. (2011) focused on religiosity and faith, respectively; Gfellner (2016) studied racial and ethnic identity; and Stander et al. (2017) investigated well-being in athletes. Each of these prior studies is certainly valuable in their own rights, and it is possible that the researchers consciously chose to focus on individual areas of strength in their studies. However, the option to use the SAI-PS to study multiple domains simultaneously and understand their relative importance for individuals (as opposed to using several measures, each assessing a different strength area, and attempting to compare the scores) is also a valuable addition to the library of measures available for use in research.

The opportunity to determine signature strengths from this model and subsequent measurement is a benefit of this type of measurement; along these lines, the magnitude of signature strengths being used as a proxy for one's overall psychosocial strength also appears to

be a valid methodological decision based on the overall validity of the model. This is the second study to use the SAI-PS in this way, with this author's master's thesis being the first (Harder, 2020). Overall, finding support for the validity of the model accomplishes one of the main goals of the present study.

Second, the inclusion of a variable which specifies strengths use, as opposed to simply measuring the importance of strengths relative to one another via signature strength magnitude, also appears to be an important decision in research. This is evidenced by the positive correlations between strengths use and other positively-valenced variables of interest (e.g., well-being and resilience). Though a moderating effect of strengths use was not observed when testing H2, the positive associations that remain between strengths use and well-being suggest that both an individual's *possession* of psychosocial strength as well as actual *use* of said strength are associated with greater well-being. This is in keeping with Dolev-Amit and colleagues' (2020) finding that simple awareness of strengths was enough to bolster well-being, relative to awareness of weaknesses or neutral characteristics. The self-understanding that comes from participation in a strengths-focused research study or strengths-based intervention may be an easy and relatively cost effective way to increase well-being (Quinlan et al., 2012).

In practice, this could have important implications for increasing well-being in post-secondary students. For example, programs which encourages or facilitates the awareness and/or use of psychosocial strengths can theoretically be supportive of a student's well-being. At a university such as Lakehead, this may mean that an academic advisor may use a tool like the SAI-PS to foster a student's self-understanding. If time and resources allow, they may then direct students to different campus or community programming that allows for the use of their specific strengths. In this way, universities can point students toward environments in which

their strengths can be both personally understood *and* utilized, potentially directing them along a path of increased or maintained well-being.

Recent research also supports the notion that use of strengths can influence one's ability to work toward their goals in the short term. A study by Moore et al. (2024) investigated the impact of employees' use of strengths in the morning on several performance metrics in the afternoon. Findings from this study indicate that following strength use, task completion that supported long-term goal attainment increased for employees. The proposed mechanism of this change involves conceptualizing strengths use as satisfaction of a need for autonomy. Essentially, employees in this study who were able to utilize their strengths to satisfy their need for autonomy were also able to increase their productivity and work toward self-determined goals at their job. This concept could easily apply to the academic space as well, wherein use of strengths might fulfill needs for students' autonomy and increase their productivity and goal attainment with regard to their academic pursuits.

Third, the utility of conceptualizing and operationalizing strengths in different, but interrelated ways, is evidenced by the results of the hierarchical regression. Psychosocial strengths (operationalized as signature strengths magnitude) was not a significant contributor to variance in well-being or university adjustment. However, ego strengths was a significant contributor to both models. It is therefore worth considering if and how the two strengths models may be considered in tandem (either in research or practice) when thinking about how they might be related to these outcomes.

As explored in the introduction, both psychosocial and ego strengths models share theoretical roots in positive psychology. Key differences lay in their levels of concreteness; while the ego strengths model is more indicative of internal processes and personality traits,

psychosocial strengths are more reflective of specific behaviours. For example, one may possess the ego strength of Purpose, which reflects their orientation toward their personal values and overall goals in life. One may also be in possession of the psychosocial strength Goals and Dreams, which reflects the actions one is taking to formulate concrete goals and work toward them in their work, education, and/or relationships. Through this lens, one's psychosocial strengths may be thought of as the specific *psychosocial contexts* in which ego strengths manifest and build toward an overall sense of well-being. It is expected that different ego strengths would be more or less evident as one progresses throughout the lifespan; likewise, the psychosocial contexts in which ego strengths are manifest may change in content and importance to one another as circumstances and priorities in life change. This theory is aligned with findings from Owens et al.'s (2018) study, in which older adults spoke about different strengths being more or less important to them depending on their stage of life. Theories about the potential ways that these developmental processes may be facilitated are continued in the interpretation of the qualitative results and beyond.

### ***Additional Exploratory Analyses***

As noted previously, an initial goal of Study 1 was to carry out analyses comparing international and domestic students on various strength-related constructs. In order for analyses of this nature to be statistically valid and allow for conclusions to be drawn from the results, relatively similar numbers of data points must be compared so as not to violate an assumption of equal variance. Additionally, the number of variables in a model determine the number of data points required in the groups determined by the categories being studied. If these assumptions cannot be accounted for, the results are considered invalid. Unfortunately, neither of these conditions was met following recruitment for Time 1 of the study. While the former condition

might be addressed through a matching process, the only remedy to the latter condition is simply to recruit more participants and thereby increase the number of data points in the “international student” category. Despite efforts to increase international student recruitment, the sample size remained low enough that the exploratory analyses could not be carried out.

It is worth considering why and how additional recruitment efforts failed. These considerations are presented here in the spirit of full transparency of the recruitment process and the barriers encountered therein. First and foremost, this author acknowledges that she could have taken additional lengths to recruit international students at Lakehead University (such as additional compensation for research participation, or extension of the data collection period). Though these were not chosen due to time and budget constraints for the project, they may have allowed for the exploratory analyses to be carried out with a higher sample size. Such analyses may have then produced useful results about the similarities and differences in personal strength profiles and strengths use between international and domestic students. Second, assistance with recruitment could have been undertaken by community partners, primarily Lakehead International and the ISSC at the University.

Lakehead International was identified as a critical stakeholder in the early formulation of the project. Indeed, the then-director of the organization was a partner on a larger strength-based educational support program along with this author, her supervisor, and several other student services offices at the University. During project formulation and data collection planning, it was understood that ISSC would be a partner on the current study as well and would assist with recruitment efforts through advertising to its service users. Between the final proposal of the current study and the planned data collection period, staff turnover occurred at Lakehead International and it appears that this understanding was not shared with new staff. At the time of

data collection, this author was ultimately unable to partner with ISSC for recruitment. Reported staff shortages within the office at the time made for slow communication and unavailability of staff for meetings. This author was also informed of a blanket “no advertising” policy ISSC cited for research involving international students (International Student Services Centre, personal communication, November 22, 2022). It was later discovered that this decision was made in error (J. Aldridge, personal communication, December 13, 2022), and that ISSC would likely have been involved in recruitment after all had the correspondence involved different staff at different times. Ultimately, the oversight resulted in a miscommunication about the office’s involvement with the project and the inability of this author to utilize a needed resource or involve an essential stakeholder.

The consequences of this result lay in the ability of this author to use findings from the proposed analysis in suggestions for programming, which was limited by the miscommunication. It is possible that key information about how services at universities apply to or translate across international and domestic student groups is missing from the conclusions drawn in this document; thus, this was taken into consideration in interpretation of the data (i.e., conclusions involving direct comparisons between the groups were not drawn due to lack of data). Though unfortunate, the circumstances surrounding these recruitment and partnership challenges may be demonstrative of more systemic factors at play in service provision to international students. This will be further discussed below when other contextual factors around the research study are considered. For now, we may turn to the results gleaned from the qualitative interviews.

## **Consideration of Study 2 Results**

### ***The Social and Relational Nature of Strengths***

One especially important and novel finding from this study relates to the content of Theme 1. Within this theme, strengths are very closely tied to relationships with significant others for international students. Various strengths areas (such as Friends, Family, and Being Involved) are explicitly relational in nature, and participants almost always identified one or more of these areas as being a signature strength. Other strengths which are not necessarily relational at face value, however, were also often identified as having a significant relational component. For example, Subthemes 1b, 1c, and 1f tie increases in non-relational strengths to the ways in which significant others in participants' lives facilitated strength development. This was true even of strengths that were cited as being inherent tendencies or natural talents (as opposed to strengths cultivated through intentional effort). These findings suggest that while certain strengths may appear to originate purely from within an individual, the social and relational context in which an individual uses/enacts their strengths, and the support they receive therein, may play a significant role in further strength development.

Upon revisiting the literature, researchers have certainly studied the relationship between personal strengths and social support, relationships with significant others, and sense of community at many junctures. However, these studies are often conducted with the aim of exploring post-traumatic growth following major life events (for example, see Eze et al., 2020; Paunescu et al., 2025; Zhang et al., 2018) and are less concerned with how these relationships appear in individuals' day to day lives. Other studies have stepped away from "strengths" as a specific variable of study to focus on well-being and mental disorder symptoms in relation to social factors. Broadly speaking, both emotionally supportive and practically helpful forms of social support have been associated with more positive mental health outcomes (Thoits, 2011). Studies have also investigated the relationship between well-being and social support,

specifically in post-secondary students. For example, Newhart (2025) recently studied the contributions of social competence, social support, and family functioning to stress, depression symptoms, and anxiety symptoms. Overall, social competence emerged as the most important factor in this model, though social support and family functioning still made significant contributions. These findings suggest that university students experience the lowest depression and anxiety symptoms when they feel as though they are effective in their social relationships, receive both emotional and practical support from others, and have their families as a solid foundation from which to build other relationships.

Similar studies have found analogous results with international students. International student status presents a unique set of circumstances in which family functioning may be physically far removed, social support is similarly low due to distance from previous community, and a sense of social competence may be compromised in a relatively unfamiliar cultural setting. Qualitative studies have previously identified support from peers, engaging in enjoyed activities outside of schoolwork, opportunities for personal growth, and helpful staff at university as positive and helpful experiences during an international student's tenure (Moore & Popadiuk, 2011). With regard to quantitative studies, support from academic institutions and perceived social support from friends have been identified as factors which increase academic performance for international students (San & Guo, 2023; Shu et al., 2020). Social support is also predictive of lower symptoms of mental illness for those who identify with other international students on the basis of enrolment status (Parlak et al., 2025). Additionally, higher social support predicted lower psychological distress at the end of treatment for international students participating in psychotherapy at a university counselling centre (Robbins et al., 2024). Although these studies do not speak directly to strengths, nor were any studies of this nature

conducted in Canada, the results clearly identify social support from peers and university staff as helpful experiences for international students.

### ***Strength Development for Emerging Adults and International Students***

Several findings from Study 2 are in clear alignment with previous research regarding psychosocial strengths and personal strengths more broadly (see Harder, 2020; Owens et al., 2018). For example, Theme 5 (and especially Subthemes 5b, c, and d; refer to Table 13) is a demonstration of the significant variation that individuals experience in the manifestation of their strengths. The findings demonstrate that the ways in which strengths develop through an individual's life, where they come from, and their motivations for engaging with their strengths vary between individuals. Further, strength development and engagement also varies significantly within individuals, as made clear by Theme 3.

These findings dovetail with Theme 4, which offers a particular life circumstance in which strength trajectories appear to converge between individuals. In other words, while individual international students appear to have notable differences in the trajectory of development of their strengths up until the point of their emerging adulthood and university enrolment, strength development seems to take on a specific trajectory when their life circumstances change in this way. As evidenced by Subthemes 3c and 4a, international students appear to experience shifting priorities when they are in the midst of these transitions. The strengths which were previously often sources of joy and frequent engagement, but which may have had less immediately obvious practical use for them (such as Free Time and Friends), were often cited as being used less upon the beginning of post-secondary education. This is often the point where strengths such as Coping While Attending University, School, and Job take

precedence as a student becomes mainly occupied with achieving academic goals and supporting themselves financially.

Past research suggests that these experiences are likely not unique to international students, but rather are a feature of entering the university environment and/or emerging adulthood as a phase of life. For example, the “imposter syndrome” phenomenon (discussed within the context of Subtheme 2c) is not unique to international students. Changing social dynamics and responsibilities often result in a feeling of imposter syndrome in first-year university students generally (Dao et al., 2024). Imposter syndrome is also often influenced by identity, as it is also experienced by other minority populations at universities (such as women in STEM fields; Beesley et al., 2024).

However, there are many ways in which the international student experience *does* present unique challenges and barrier to utilizing strengths. For example, the sense of culture shock that international students may experience (illustrated by Subtheme 2b) is probably unlikely to occur for individuals attending university in their country of origin (even if they are far from home). Participants also spoke to clashes between their own culture and Canadian culture impacting their accessing resources, a sense of needing to work harder to achieve their goals than their Canadian peers, and experiencing overt racism at school and work (see Subtheme 2a). All of these experiences were presented as ways in which international students were thwarted in their engagement with their strengths, especially those related to School, Coping While at University, Job, and Faith and Culture.

These results from both Study 1 and Study 2 can be integrated to explain psychosocial strengths within a developmental framework. They can also be applied to the university context, and to the international student experience more specifically. The following section will

undertake this integration and place it in the context of the international student experience in 2025.

## **Integration of Results from Study 1 and Study 2**

### ***The Development of Psychosocial Strengths During the Lifespan***

Several takeaway messages can be gleaned from the discussion of the overall results in the present project:

1. Psychosocial strengths have clear and intuitive relationships to factors like well-being, university adjustment, stress, and resilience.
2. Use of one's psychosocial strengths in addition to awareness of strengths may play a role in the enhancement and maintenance of well-being.
3. Psychosocial strengths appear to be the domains of life in which one is able to enact the ego strengths they have gained throughout their development.
4. Psychosocial strengths also develop throughout the lifespan, though the source of the development and the trajectory upon which it occurs are variable both between individuals and at different points in life.
5. Similar strength development trajectories appear for individuals in their emerging adulthood. These similarities appear even more clearly for emerging adults enrolled in post-secondary education.
6. International students cite relationships as being essential for and central to their strength development. Social support (from both peers and institutions) was also previously identified as important for managing stress and mental illness symptoms.
7. Despite their similarities to other emerging adults, international students continue to experience barriers to using and engaging with their strengths.

Overall, these insights seem to suggest that within each life domain, there various steps that occur when a psychosocial strength is developing for an individual. First, there is an *initial emergence* of a strength in a particular domain. In this step, the emergence is usually triggered by some event; an individual may encounter a challenge in their life, have a particular activity or perspective introduced to them by a significant other, or they may independently come to enjoy engaging with that domain of life. Second, *fostering and increasing* of the strength occurs as they continue their engagement in that domain, others actively facilitate their participation, and they use their strengths as a means to cope with related or unrelated challenges in their life. Third, individuals experience a *settling* of their strengths, such that competence and confidence in a particular domain is incorporated into one's identity. This may be the point at which an individual fully realizes the importance of that specific domain in their life. Throughout each of these steps, an individual is developing their ego strengths as well, and their ego strengths are expressed in the context of their psychosocial strengths. It is also noted that each of an individual's psychosocial strengths may be developing in tandem with one another, but may be at different steps of development throughout different points in their life.

### ***Development of Psychosocial Strengths for International Students***

As noted, international students may experience barriers which impede their progression through the steps. Some of these barriers are characteristic of emerging adulthood as a whole, some may be characteristic of university attendance, and others may be common among any newcomers to Canada. However, these factors converge for international students and present a unique picture of how strength development may be either uniquely impeded or facilitated through these steps. Barriers identified both by research participants and past literature have clear applications to each step individually.

With regard to fostering and increasing of strengths, potential negative experiences may thwart an international student's use of and engagement with their strengths that would allow for such increases. For example, an international student who encounters high cost of tuition and living in a foreign country may find they have no time at all to engage in those strengths which were previously labelled as being more leisure-oriented. Domestic students certainly also encounter financial and time-related barriers to leisure, though lower tuition and broader access to employment inherently means that they are, on average, more privileged in this regard. Though the strength Free Time may be less salient for any student entering university, bureaucratic and institutional factors place more burden on international students by definition. This, in turn, may impact their strength development. These burdens may have a similar impact on the initial emergence of strengths as well, as heavy concentration on specific strengths out of necessity may limit the opportunity that international students have to explore other domains of life.

While these burdens largely cannot be changed by universities themselves (as further explored in the next section), the institutions can play a fundamental role in lessening their impact on students and fostering strengths. Well-being may be increased in spite of the challenges that an international student is encountering through university events which foster community in the international student body. Communities of this nature may provide the social and relational context in which international students have indicated that their strengths thrive. Furthermore, services which offer international students practical support with tasks such as visa application or renewal, securing housing, and seeking out employment opportunities may lessen some of the burdens from outside of the university itself. Social support of this nature provides

opportunities for support from both peers and university staff on the levels of emotional support and practical help.

With regard to settling of strengths, international students may also experience barriers to fully exploring and realizing personal identity within the university context. For example, an international student who had previously felt strength from their Faith and Culture may experience racism or religious discrimination. Students may also experience other oppressions that inflict harm on those with marginalized identities, such as homo- or transphobia which impede their emerging strengths in Relationships or from Self-Knowledge. Such an individual may experience resistance in the settling of those strengths if the environment is hostile to those aspects of their identity. Again, universities can be a place where the settling of these strengths is encouraged. This might be accomplished through community building activities such as those mentioned above, as well as efforts to create an institutional culture of cultural resonance and active celebration of individual strengths. When considering how these efforts may be accomplished, keeping the current state of international student attendance at Canadian universities is of utmost importance.

### ***Contextualizing the International Student Experience in Canada in 2025***

An important point to keep in mind in the interpretation of the data (and subsequent theorizing) is the context in which the data were collected. The study itself was formulated between late 2021 and early 2022, at which time international students were being recruited to Canadian universities in relatively high numbers. A Statistics Canada (2025) datasheet reflects that international student enrolment in Ontario did, in fact, decrease during 2020 (i.e., the first year of the COVID-19 pandemic). In 2020, international student visas decreased by 39% from the previous year. However, in 2021, there was a rebounding of granted visas with an increase of

83% over 2020, and with numbers surpassing those seen in 2019 and years previous. Increases in visas continued from 2021 into 2022, which saw a further 32% increase in visas; the increase from 2022 to 2023 was approximately 25%, with the highest numbers of international student visas (over 350,000) being granted in 2023. Therefore, the data were collected during a time when international student enrolment was increasing in Ontario, as opposed to the overall organic decrease initially projected by Statistics Canada (2021b).

Yet, following the boom in international student visas being granted in the wake of the pandemic, the numbers did eventually decrease in 2024. This came about as a result, not of organic decrease in enrolment, but of policy. In January of 2024, the Government of Canada announced a plan to greatly reduce the number of international student visas granted over the following two years (Government of Canada, 2024a). In accordance with this, the number of international students studying under a visa were reduced over the following months (Statistics Canada, 2025). The current data suggests a downward trend overall, as visas in Ontario were granted at a rate of 32% less in 2024 than in 2023. As of June 2025, visas have been granted at approximately the same rate as in 2024, but at 19% less than had been granted in 2023 by June of that year. At the current rate of visa approval, the Government of Canada is projected to grant approximately 55% the number of visas in 2025 as were granted in 2024. Overall, it is clear that the context in which the data for this project were collected and the context in which they are interpreted are very different, as international students in Ontario are decreasing steadily in numbers. It is also worth noting that the previously open, welcoming stance projected by the federal and provincial governments alike has changed substantially.

The difference in context between data collection and interpretation exists not only in enrolment numbers, but in consequences for international and domestic students in Ontario alike.

In the last several years, the Ontario provincial government has made substantial decreases in public funding for universities (Al Mallees, 2024; Crawley, 2024). While it was expected that the increase in international student enrolment (as observed prior to 2024) would compensate for the shortfall due to higher rates of international student tuition, the cuts to international student visas in 2024 do not allow for this to be realized. An important question then emerges: How will Ontario's universities allocate their already meager resources?

Given that these trends have emerged only recently, there is no concrete data available regarding the effect of less money for universities to spend on student services. It seems logical to assume, however, that some services will decrease in availability or disappear entirely. One wonders if international student service organizations might be targeted for decreased funding as justified by the lower numbers of international students enrolled. As noted, these organizations provide essential logistical, academic, and administrative services for students undertaking post-secondary education in Canada. A decrease in services for international students may present more barriers to their university adjustment, well-being, strengths use, and flourishing as students are forced to take on more of the labour for these tasks alone.

There is an additional potential negative impact to these policies that centers on the perception of international students on Canadian campuses. A cited reason for introducing the cap on international student visas is concerns regarding the "integrity of the international student system," potential "abuse" of the system, "sustainable population growth," and "genuine students" being able to receive required support (Government of Canada, 2024b). All of these concerns appear face valid, especially in the context of housing and food insecurity for Ontario citizens. There is a risk, however, in framing the reforms to the visa system in this way, especially as it pertains to the "genuineness" of international students who manage to obtain

study visas. The wording of the policy suggests that international students in our midst may be “ungenuine,” and it is worth considering if these conditions introduce the potential for increased discrimination for these students in academia. Anti-immigrant sentiment already exists in Canada (Cheung-Blunden et al., 2022), and those of us with power and privilege would do well to protect those who are susceptible to blatant discrimination on these grounds. As with the potential financial implications of the policy decision, only time will tell as to how international students (as well as their domestic student peers) are affected by these changes. Viewing these outcomes from a social justice lens is likely very important for helping our international student peers on their academic journeys.

As noted above, universities have an extremely important role to play in the development of international students’ strengths, as well as the strengths of their domestic student peers. Individual students come to institutions with unique identities and may experience (potentially multiple) marginalizations. These marginalizations have the potential to introduce barriers to strength development, well-being, and university adjustment, but universities can also be the site of great flourishing in spite of these barriers. Elimination (or at the very least, reduction) of institutional barriers to flourishing is an important responsibility for universities to take on by way of programming and services, especially when it concerns their most vulnerable students.

### **Limitations of the Present Study and Future Considerations**

Having discussed the findings of the present project and their implications for the current state of international student attendance at Canadian universities, it is now important to turn to the project’s limitations. Several methodological limitations of the project are considered, followed by discussion of the project’s specificity. These limitations are accompanied by suggestions for future studies to mitigate these limitations and investigate remaining research

questions. In particular, attention is drawn to the crucial role that university organizations may play as community partners in future research.

### ***Methodological Limitations***

One limitation that has already been discussed at length is the issue of sample size; specifically, the Study 1 subsample of international students was too small to conduct specific intended analyses. In addition to this, the overall Time 2 subsample was substantially smaller than the Time 1 sample, with approximately 44% of the Time 1 participants returning to complete measures at Time 2. Some attrition between timepoints in a research study is common, and is not expected to meaningfully bias the data (Gustavson et al., 2012). However, the unexpected attrition limited the opportunity to include Time 1 and Time 2 variables in planned analyses. As seen in the tests of H1, there was no meaningful change observed between Times 1 and 2 on either well-being or university adjustment in spite of the variables theoretically being subject to change over the course of the academic year. It is possible that bias was present after all, such that those who returned to complete the second part of the study were only those who had not experienced changes in those variables, though it is also possible that the interval between data collection at Times 1 and 2 was too short to notice meaningful changes.

The high attrition rate might be best explained by the benefits offered to participants for their contributions to the research. Students were invited to participate in the quantitative portion of the study in exchange for credit toward an undergraduate psychology course, though not every participant opted for this benefit. This could potentially be because they were not eligible for such credit. Along these lines, participants at Time 1 who were eligible for credit may not have been eligible at Time 2, and thus may not have felt motivated to participate in the same way they had at Time 1. Inclusion of additional honoraria or other recognition of the participants'

contribution (such as a prize draw, or something similar) may be worth considering for researchers undertaking future longitudinal research.

A second methodological limitation lays in the reliability of certain variables. Specifically, the relatively low reliability of several ego strengths (all individual strength subscales with the exception of Hope at both Times) and aspects of resilience (structured style at Time 2). The cause of the low reliability is unknown, especially given previous psychometric validation with these measures in emerging adult samples. In some previous studies using the PIES, such as Gfellner and Cordoba (2017), acceptable reliability was only reported for total ego strengths, while reliability for individual scales was missing; in others, acceptable reliability is reported for each individual scale (such as Anthis, 2014). Likewise, previous studies using the RSA demonstrate acceptable reliability across the measure for culturally diverse post-secondary students (such as Jowkar et al., 2010; Kim & Zalaquett, 2025). These measures were chosen for the study given their ease of access and strong psychometric properties, though it is possible that another of numerous scales used to assess these constructs (such as the Connor-Davidson Resilience Scale, or a different measure of strengths based on another of the many strengths models) may have been of more use and had stronger psychometric properties in this study.

Additionally, the associations observed among the variables in this project are purely correlational in nature. Certain variables, such as ego and psychosocial strengths themselves, would not be amenable to manipulation in an experimental design. The constructs are, by their nature, therefore difficult to establish as part of causal relationships or as having direct impact on variables like well-being or university adjustment. One variable that may be more manipulable in a future study is strengths use. Future research may potentially design an intervention study facilitating strengths use for an experimental group, and limiting (or at least not actively

facilitating) strengths use for a control group, to observe the impact of this variable on outcomes of interest. With regard to the present project, speculations made within this document are guided by theory to interpret the meanings of the relationships between variables.

### ***Generalizability Beyond One Canadian University***

Though not necessarily a limitation which diminishes the merit of the project, it is acknowledged that the data in this project were collected from a single Canadian university with a unique population. As with many institutions, Lakehead University possesses unique strengths and weaknesses that may draw specific students (both international and domestic) to study there. For example, the university is highly regarded among universities with a primarily research orientation (Lakehead University, 2025). The majority of its accolades, however, relate to its undergraduate programs as opposed to its graduate studies. While this does not mean that the quality of graduate education at Lakehead is poor, prospective graduate students may simply not be initially drawn to the institution in the same way as another university with a higher advertised quality of graduate education. Factors such as these may impact the overall demographics of the student body, and the sample in the present study as a consequence.

Demographic differences between Lakehead and other universities may also extend to the international student sample. Within the Study 2 sample, for instance, several participant countries of origin (i.e., India, China, and Nigeria) were represented more than once. This repetition is not inherently a problem, as it is likely a representation of Lakehead's international student body as a whole. However, Canada is a diverse nation with international post-secondary students from a vast number of countries and regions in the world. It is likely that the cultural and ethnic backgrounds of the international student sample may not have captured this diversity as it is seen across the country.

It is also worth considering the degree of homogeneity among the international student subsample from the same regions of the world. Taking a large and diverse country like India as an example, it is entirely possible that the participants who endorsed being from India originated from very different regions of the country with very different cultures. The same could be said of participants from China or Nigeria. Participants in the qualitative interviews were given the opportunity to discuss how their specific cultural background informs their strength development, though participants who only contributed to the quantitative portion were not. Use of nationality as a proxy for cultural background in the quantitative portion of the study is therefore considered a limitation. Future studies of international students in Canada might consider more nuanced questions about cultural background to the extent that it is possible when gathering demographic data.

### *Involvement of Community Partners*

A final limitation of the project is the lack of involvement of community partners beyond the initial formulation stage. The involvement of an organization like Lakehead International/ISSC would have been invaluable not only for recruitment purposes, but also to take into account additional thoughts and contributions regarding Study 2 as the research and data analysis was beginning. This author possesses psychological research skills, including an approach of cultural humility and an orientation toward social justice in research, though she has never been an international student and has not previously worked with such a population beyond the present study. There are likely factors regarding best practices she did not consider when formulating and carrying out the research, and assistance from a community partner may have made such factors apparent and resulted in a more useful end product. Future research would therefore likely be of the most benefit if community partners are involved throughout the entire

research process. Replication of the present project, in whole or in part, may also be warranted given said community partner input and the changes in context for international students in Canada.

### **Conclusion**

The present project set out to establish validity of the psychosocial strengths model while illuminating the relationships between psychosocial strengths and other variables of interest, as well as connecting psychosocial strengths to the international and domestic university student experience. It appears that psychosocial strengths emerge through various experiences in life, are fostered and increased at different times according to one's circumstances and priorities, and then finally settle and incorporate into one's identity. Throughout these steps, ego strengths manifest themselves in the various life domains represented by psychosocial strengths. Awareness and use of strengths also positively relate to well-being and university adjustment. International students at university, with their unique intersections of identity, appear more vulnerable to more barriers to strength emergence, fostering/increasing, and settling than their domestic student peers. However, universities have a unique role in students' lives that may assist with their circumnavigation of these barriers. Reduction or elimination of international students' barriers to flourishing is presented as a social imperative for universities to take on. Given the changes in policy that limit the numbers of international students in Canada, time will tell as to if and how universities will rise to the occasion.

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## Tables

**Table 1**

*Study 1: Summary of Demographic Variables for Sample at Time 1 and Time 2: Gender, Ethnicity, Sexuality, Housing, and Use of Mental Health Services*

Demographic information	Time 1		Time 2	
	<i>n</i>	%	<i>n</i>	%
Gender				
Female	282	78.8	125	81.7
Male	60	16.8	27	17.6
Another gender identity (i.e., non-binary, two-spirit)	10	2.8	1	0.7
Ethnicity				
Caucasian/White	242	67.6	118	74.2
South Asian (Indian, Pakistani, Sri Lankan, Bangladeshi)	34	9.5	11	6.9
Black (African, African-American, African-Canadian, Caribbean)	33	9.2	10	6.2
Indigenous (First Nations, Metis, Inuit)	30	8.4	14	8.9
East Asian (Chinese, Japanese, Korean, Polynesian)	14	3.9	6	3.8
West Asian (Arabian, Armenian, Iranian, Israeli, Lebanese, Palestinian, Syrian, Turkish)	9	2.5	4	2.5
Latin American (Mexican, Indigenous Central/South American)	8	2.2	5	3.1
Southeast Asian (Burmese, Cambodian, Filipino, Laotian, Malaysian, Thai, Vietnamese)	8	2.2	2	1.2
Sexuality				
Heterosexual (straight)	270	75.4	117	78.0
Bisexual	54	15.1	27	18.0
Another sexual identity (e.g., pansexual, two-spirit)	18	5.0	0	0
Homosexual (gay or lesbian)	9	2.5	6	4.0
Housing arrangement				
Residing in parents' home	139	38.8	74	46.5
Residing in own home/apartment	88	24.6	43	27.0
Residing in off-campus housing	64	17.9	24	15.1
Residing in on-campus housing	60	16.8	18	11.3
Seeking services from a mental health professional				
No	282	78.8	120	75.5
Yes	76	21.2	39	24.5
Total <i>n</i>	358	100	159	100

**Table 2**

*Study 1: Summary of Education- and Work-Related Variables for Sample at Time 1 and Time 2: Year in University, Enrolment Status, Employment Status, and Funding Source*

	Time 1		Time 2	
	<i>n</i>	%	<i>n</i>	%
<b>Demographic information</b>				
Year in University				
1	109	30.4	27	17.0
2	70	19.6	49	30.8
3	52	14.5	26	16.4
4	48	13.4	31	19.5
5 or above	8	2.2	7	4.4
Enrolment status				
Domestic	303	84.6	140	88.1
International	49	13.7	19	11.9
Employment Status				
Working part-time	207	57.8	95	59.7
Unemployed and not looking for work	67	18.7	19	11.9
Unemployed and looking for work	38	10.6	21	13.2
Working full-time	29	8.1	19	11.9
Caring for children/other family members	27	7.5	9	5.7
Other (i.e., casual/seasonal employment)	3	0.8	2	1.3
Source of Funding for University				
Funding self/assistance from family	259	72.3	111	69.8
OSAP	156	24.6	75	47.2
Scholarships/bursaries	20	5.6	8	5.0
Other (i.e. Indian band funding, private loans)	10	2.8	7	4.4
Educational authority	5	1.4	4	2.5
Secondary career/skills development	7	2.0	3	1.9
Total <i>n</i>	358	100	159	100

**Table 3**

*Study 2: Summary of Demographic Variables for Interview Subsample: Gender, Ethnicity, Sexuality, Housing, and Use of Mental Health Services*

Demographic information	Interview Sample	
	<i>n</i>	%
Gender		
Female	8	61.5
Male	5	38.5
Another gender identity (i.e., non-binary, two-spirit)	0	0
Ethnicity		
Caucasian/White	0	0
Aboriginal (First Nations, Metis, Inuit)	0	0
Black (African, African-American, African-Canadian, Caribbean)	4	30.1
South Asian (Indian, Pakistani, Sri Lankan, Bangladeshi)	2	15.4
Latin American (Mexican, Indigenous Central/South American)	2	15.4
East Asian (Chinese, Japanese, Korean, Polynesian)	3	23.1
Southeast Asian (Burmese, Cambodian, Filipino, Laotian, Malaysian, Thai, Vietnamese)	0	0
West Asian (Arabian, Armenian, Iranian, Israeli, Lebanese, Palestinian, Syrian, Turkish)	1	7.7
Sexuality		
Heterosexual (straight)	10	76.9
Bisexual	2	15.4
Another sexual identity (e.g., pansexual, two-spirit)	1	7.7
Homosexual (gay or lesbian)	0	0
Housing arrangement		
Residing in parents' home	0	0
Residing in on-campus housing	5	38.5
Residing in own home/apartment	0	0
Residing in off-campus housing	8	61.5
Seeking services from a mental health professional		
No	12	92.3
Yes	1	7.7
Total <i>n</i>	13	100

**Table 4**

*Study 2: Summary of Education- and Work-Related Variables for Interview Subsample: Year in University, Enrolment Status, Employment Status, and Funding Source*

Demographic information	Interview Sample	
	<i>n</i>	%
Year in University		
1	6	46.2
2	2	15.4
3	2	15.4
4	0	0
5 or above	3	23.1
Enrolment status		
Domestic	0	0
International	13	100
Employment Status		
Working part-time	7	53.8
Unemployed and not looking for work	1	7.7
Unemployed and looking for work	5	38.4
Working full-time	0	0
Other (such as casual employment)	0	0
Caring for children/other family members	0	0
Source of Funding for University		
Funding self/assistance from family	12	92.3
OSAP	1	7.7
Educational authority	1	7.7
Secondary career/skills development	0	0
Total <i>n</i>	13	100

**Table 5***Study 1: SAI-PS Subscales and Associated Descriptive Statistics at Times 1 and 2*

SAI-PS Subscale	Time 1						Time 2					
	$M (SD)^T$	$M (SD)^D$	$M (SD)^I$	$\alpha^T$	$\alpha^D$	$\alpha^I$	$M (SD)^T$	$M (SD)^D$	$M (SD)^I$	$\alpha^T$	$\alpha^D$	$\alpha^I$
Family	1.64 (.31)	1.66 (.30)	1.56 (.38)	.76	.75	.80	1.64 (.30)	1.66 (2.9)	1.47 (.32)	.75	.75	.71
Friends	1.63 (.34)	1.63 (.34)	1.63 (.32)	.72	.73	.65	1.65 (.35)	1.67 (.36)	1.46 (.33)	.75	.78	.50
School	1.53 (.25)	1.54 (.24)	1.51 (.30)	.73	.73	.77	1.52 (.29)	1.54 (.27)	1.48 (.34)	.79	.76	.79
Free Time	1.90 (.29)	1.08 (.28)	1.15 (.34)	.71	.69	.79	1.09 (.27)	1.08 (.26)	1.11 (.31)	.70	.68	.73
Self-Knowledge	1.50 (.29)	1.49 (.28)	1.51 (.32)	.83	.83	.84	1.53 (.29)	1.54 (.27)	1.45 (.36)	.84	.84	.87
Healthy Lifestyle	1.50 (.35)	1.51 (.35)	1.46 (.33)	.77	.78	.71	1.50 (.36)	1.51 (.35)	1.40 (.38)	.78	.77	.73
Being Involved	1.08 (.50)	1.05 (.49)	1.25 (.49)	.82	.82	.82	1.04 (.50)	1.01 (.51)	1.12 (.38)	.82	.83	.55
Faith and Culture	1.16 (.44)	1.10 (.43)	1.48 (.35)	.83	.82	.73	1.10 (.45)	1.05 (.44)	1.34 (.42)	.83	.83	.79
Goals and Dreams	1.78 (.29)	1.79 (.27)	1.73 (.39)	.76	.73	.83	1.76 (.30)	1.76 (.29)	1.71 (.43)	.76	.75	.87

(continued)

**Table 5, continued**

SAI-PS Subscale	Time 1						Time 2					
	$M (SD)^T$	$M (SD)^D$	$M (SD)^I$	$\alpha^T$	$\alpha^D$	$\alpha^I$	$M (SD)^T$	$M (SD)^D$	$M (SD)^I$	$\alpha^T$	$\alpha^D$	$\alpha^I$
On the Job	1.69 (.40)	1.72 (.35)	1.44 (.58)	.81	.78	.85	1.69 (.38)	1.73 (.34)	1.43 (.50)	.78	.76	.70
Relationships/ Significant Other	1.19 (.83)	1.25 (.80)	.795 (.88)	.98	.97	.99	1.19 (.85)	1.21 (.85)	.987 (.91)	.98	.98	.99
Coping while Attending University	1.24 (.45)	1.23 (.44)	1.30 (.49)	.78	.77	.82	1.27 (.43)	1.26 (.42)	1.28 (.48)	.75	.75	.76
Time Management/Planning	1.51 (.42)	1.52 (.40)	1.40 (.53)	.69	.66	.77	1.47 (.42)	1.49 (.41)	1.41 (.56)	.74	.71	.90
Engaging with Others	1.25 (.47)	1.24 (.47)	1.27 (.52)	.69	.69	.76	1.22 (.51)	1.21 (.50)	1.19 (.53)	.73	.73	.70
Parenting	.25 (.61)	.24 (.61)	.275 (.32)	.98	.98	.99	.24 (.61)	.23 (.59)	.22 (.59)	.98	.99	.99

*Note.*  $\alpha$  = Cronbach's alpha.

T = Total sample; D = domestic student subsample; I = International student subsample.

**Table 6**

*Study 1: Descriptive Statistics and Reliability Values for Study Variables (Psychosocial Strengths, Ego Strengths, Well-Being, Resilience, Perceived Stress, and Adjustment to University) at Times 1 and 2*

	Time 1						Time 2					
	<i>n</i>	<i>M (SD)<sup>T</sup></i>	<i>M (SD)<sup>D</sup></i>	<i>M (SD)<sup>I</sup></i>	$\alpha^D$	$\alpha^I$	<i>n</i>	<i>M (SD)<sup>T</sup></i>	<i>M (SD)<sup>D</sup></i>	<i>M (SD)<sup>I</sup></i>	$\alpha^D$	$\alpha^I$
Signature strengths magnitude	350	1.93 (.13)	1.94 (1.2)	1.91 (.17)	--	--	158	1.93 (.14)	1.94 (1.2)	1.87 (.25)	--	--
Strengths use	346	5.16 (1.04)	5.16 (1.02)	5.21 (1.17)	.96	.95	154	5.12 (1.01)	5.13 (.98)	5.02 (1.20)	.96	.96
<b>Ego strength variables</b>												
Global ego strength	345	3.46 (.54)	3.46 (.54)	3.44 (.54)	.90	.86	152	3.57 (.56)	3.47 (.54)	3.40 (.67)	.90	.93
Hope	347	3.25 (.87)	3.24 (.87)	3.38 (.86)	.75	.63	152	3.26 (.87)	3.29 (.87)	3.05 (.97)	.79	.77
<b>Well-being variables</b>												
Global well-being	340	4.53 (.76)	4.52 (.74)	4.61 (.91)	.93	.95	151	4.51 (.72)	4.52 (.70)	4.28 (.85)	.93	.92
Eudaimonic	343	4.54 (.86)	4.51 (.85)	4.74 (.97)	.82	.85	151	4.48 (.80)	4.46 (.76)	4.52 (1.04)	.80	.82
Hedonic	343	4.53 (1.04)	4.52 (1.02)	4.57 (1.16)	.85	.86	151	4.53 (1.03)	4.59 (.92)	3.95 (1.56)	.85	.91
Financial	343	4.36 (1.18)	4.39 (1.16)	4.20 (1.27)	.85	.81	151	4.29 (1.24)	4.30 (1.24)	1.05 (1.37)	.89	.85
Physical	343	4.04 (1.1)	3.99 (1.12)	4.36 (1.28)	.88	.91	151	4.02 (1.10)	4.00 (1.09)	4.07 (1.20)	.87	.88
Social	343	5.09 (.97)	5.14 (.94)	4.82 (1.13)	.83	.80	151	5.13 (.86)	5.21 (.80)	4.39 (1.05)	.81	.63

(continued)

**Table 6, continued**

	Time 1						Time 2					
	<i>n</i>	<i>M (SD)<sup>T</sup></i>	<i>M (SD)<sup>D</sup></i>	<i>M (SD)<sup>I</sup></i>	$\alpha^D$	$\alpha^I$	<i>n</i>	<i>M (SD)<sup>T</sup></i>	<i>M (SD)<sup>D</sup></i>	<i>M (SD)<sup>I</sup></i>	$\alpha^D$	$\alpha^I$
<b>Resilience variables</b>												
Global resilience	341	3.63 (0.61)	3.13 (.60)	3.65 (.64)	.92	.92	151	3.61 (.55)	3.63 (.54)	3.51 (.68)	.90	.91
Perception of self	343	3.41 (0.74)	3.39 (.73)	3.53 (.79)	.76	.76	151	3.42 (.79)	3.43 (.79)	3.34 (.81)	.81	.71
Perception of future	343	3.64 (1.00)	3.63 (1.00)	3.72 (1.04)	.86	.83	151	3.61 (1.00)	3.64 (.98)	3.35 (1.20)	.85	.78
Social competence	342	3.38 (.83)	3.33 (.78)	3.37 (.84)	.78	.71	151	3.34 (.78)	3.38 (.83)	3.46 (.84)	.77	.61
Family cohesion	342	3.60 (.94)	3.59 (.95)	3.71 (.86)	.89	.75	151	3.51 (.86)	3.50 (.85)	3.60 (1.02)	.87	.90
Social resources	352	4.14 (.74)	4.17 (.71)	3.91 (.80)	.80	.85	151	4.11 (.66)	4.17 (.62)	3.64 (.86)	.79	.85
Perceived stress	345	3.12 (.61)	3.13 (.60)	3.07 (.62)	.88	.87	151	3.07 (.62)	3.07 (.60)	3.10 (.75)	.88	.91
Adjustment to university	342	3.24 (.71)	3.24 (.70)	3.20 (.73)	.87	.86	151	3.36 (.75)	3.28 (.73)	3.04 (.93)	.88	.90

Note.  $\alpha$  = Cronbach's alpha.

T = Total sample; D = domestic student subsample; I = International student subsample.

**Table 7**

*Study 1: Intercorrelations between Signature Strength Magnitude, Strengths Use, Global Ego Strength, Global Well-Being, Resilience, Perceived Stress, and Adjustment to University At Times 1 (below diagonal) and 2 (above diagonal)*

	1	2	3	4	5	6	7
1. Signature strength magnitude	--	.37**	.41**	.36**	.40**	-.16*	.17*
2. Strengths use	.44**	--	.75**	.68**	.64**	-.55**	.59**
3. Global ego strength	.39**	.65**	--	.72**	.77**	-.71**	.66**
4. Global well-being	.44**	.65**	.57**	--	.67**	-.63**	.62**
5. Global resilience	.42**	.63**	.70**	.68**	--	-.59**	.67**
6. Perceived stress	-.23**	-.45**	-.65**	-.57**	-.56**	--	-.70**
7. Adjustment to university	.31**	.52**	.59**	.57**	.61**	-.62**	--

\* $p \leq .05$ , \*\* $p \leq .01$

**Table 8**

*Intercorrelations between Signature Strengths Magnitude, Strengths Use, Global Well-Being, and Well-Being Subscales at Time 1 (below diagonal) and Time 2 (above diagonal)*

	1	2	3	4	5	6	7	8
1. Signature strength magnitude	--	.37**	.36**	.29**	.23**	.20*	.25**	.36**
2. Strengths use	.44**	--	.68**	.69**	.66**	.41**	.41**	.30**
3. Global well-being	.44**	.65**	--	.80**	.82**	.68**	.81**	.57**
4. Eudaimonic well-being	.35**	.61**	.82**	--	.68**	.36**	.55**	.35**
5. Hedonic well-being	.37**	.62**	.82**	.70**	--	.46**	.55**	.44**
6. Financial well-being	.26**	.36**	.66**	.35**	.41**	--	.47**	.23**
7. Physical well-being	.33**	.49**	.80**	.54**	.57**	.44**	--	.32**
8. Social well-being	.35**	.34**	.66**	.44**	.44**	.38**	.38**	--

\* $p \leq .05$ , \*\* $p \leq .01$

**Table 9**

*Intercorrelations between Signature Strengths Magnitude, Strengths Use, Global Resilience, and Resilience Subscales at Time 1 (below diagonal) and Time 2 (above diagonal)*

	1	2	3	4	5	6	7	8
1. Signature strength magnitude	--	.37**	.40**	.18*	.42**	.08	.29**	.39**
2. Strengths use	.44**	--	.64**	.60**	.55**	.44**	.31**	.35**
3. Global resilience	.42**	.63**	--	.73**	.73**	.62**	.71**	.70**
4. Perception of self	.26**	.53**	.72**	--	.61**	.36**	.31**	.28**
5. Perception of future	.38**	.62**	.77**	.62**	--	.30**	.33**	.40**
6. Social competence	.28**	.44**	.67**	.40**	.44**	--	.41**	.29**
7. Family cohesion	.24**	.36**	.75**	.39**	.43**	.34**	--	.49**
8. Social resources	.32**	.39**	.74**	.33**	.42**	.36**	.59**	--

\* $p \leq .05$ , \*\* $p \leq .01$

**Table 10***Study 1: Summary of Hierarchical Regression Analysis Predicting Global Well-Being at Time 2**(n = 142)*

Steps/Predictors	$\beta$	<i>B (SE)</i>	<i>R<sup>2</sup> (Adj.)</i>	$\Delta R^2$
Step 1			.138 (.670)	.144**
Perceived stress (Time 1)	-.380**	-.452 (.093)		
Step 2			.212 (.641)	.085**
Perceived stress (Time 1)	-.150	-.178 (.117)		
Signature strength magnitude (Time 1)	.113	.649 (.465)		
Global ego strengths (Time 1)	.312*	.420 (.140)		

*Note.* \*  $p < .01$ ; \*\*  $p \leq .001$ .**Table 11***Study 1: Summary of Hierarchical Regression Analysis Predicting Adjustment to University at**Time 2 (n = 142)*

Steps/Predictors	$\beta$	<i>B (SE)</i>	<i>R<sup>2</sup> (Adj.)</i>	$\Delta R^2$
Step 1			.253 (.247)	.253**
Perceived stress (Time 1)	-.503**	-.619 (.090)		
Step 2			.340 (.325)	.087**
Perceived stress (Time 1)	-.267*	-.329 (.112)		
Signature strength magnitude (Time 1)	.108	.642 (.445)		
Global ego strengths (Time 1)	.322**	.449 (.134)		

*Note.* \*  $p < .01$ ; \*\*  $p \leq .001$ .

**Table 12**

*Study 1: Summary of Moderation Analyses Predicting Global Well-Being at Times 1 (n = 338; above) and 2 (n = 151; below)*

Predictors	<i>b</i> ( <i>SE</i> )	<i>t</i>	<i>R</i> <sup>2</sup>	<i>F</i>
Full model (Time 1)			.449	90.858*
Predictor: Signature strengths magnitude (Time 1)	.142 (1.223)	.116		
Moderator: Strengths use (Time 1)	-.0422 (.568)	-.074		
Signature strengths magnitude (Time 1) x Strengths use (Time 1)	.237 (.289)	.820		
Full model (Time 2)			.474	44.143*
Predictor: Signature strengths magnitude (Time 2)	1.57 (1.462)	1.071		
Moderator: Strengths use (Time 2)	.863 (.661)	1.306		
Signature strengths magnitude (Time 2) x Strengths use (Time 2)	-.212 (.338)	-.629		

*Note: \*  $p \leq .001$ .*

**Table 13***Study 2: Summary of Themes and Subthemes from Qualitative Interviews*

<b>Themes</b>	<b>Subthemes</b>
1: Psychosocial strengths exist within the context of an individual's relationships.	<ul style="list-style-type: none"> <li>a. Relationships are central to students' lives and well-being.</li> <li>b. Relationships with important people in students' lives have resulted in an increase in other signature strengths.</li> <li>c. Students became aware of their strengths when they were identified by significant others.</li> <li>d. Strengths developed when students were encouraged and supported.</li> <li>e. Strengths often exist in the context of service to others.</li> <li>f. Strengths have developed and increased in tandem with the strengths of significant others.</li> <li>g. Time and physical distance from the people in students' important relationships changed the nature of their signature strengths.</li> </ul>
2: International students experience barriers to engaging with their signature strengths within the context of university.	<ul style="list-style-type: none"> <li>a. Newcomer/international student status presents unique barriers to students' use of and engagement with their strengths.</li> <li>b. Students experience a sense of "culture shock."</li> <li>c. Students experience other barriers to engagement with strengths that are not specific to their international student status.</li> </ul>
3: The manifestation of signature strengths can vary widely depending on the context of an individual's current circumstances.	<ul style="list-style-type: none"> <li>a. Changing life circumstances and contexts affect the way students use their strengths.</li> <li>b. Although students have many strengths which qualify as their "signature strengths," they must realistically exist in a hierarchy.</li> <li>c. Students have difficulty maintaining strengths in areas that were previously very important to them.</li> </ul>
4: The university environment fosters personal development by intrinsically increasing the need for independence, self-knowledge, and accountability.	<ul style="list-style-type: none"> <li>a. The university environment fosters identity development, and has a subsequent impact on strengths.</li> <li>b. The international student experience contains many features characteristic of the transition to emerging adulthood.</li> </ul>

(continued)

<b>Themes</b>	<b>Subthemes</b>
5: Influences on one's strength development and the choice to attend university (and/or what subject area should be the focus of study) vary widely and change over time.	<ul style="list-style-type: none"> <li>a. Students perceive changes in the sources of their motivations to attend university in Canada, as well as the development of their signature strengths.</li> <li>b. There is wide variation in the degree of clarity students have regarding their goals for the future.</li> <li>c. There is wide variation in the trajectory of strength development for students.</li> <li>d. There is wide variation in what students view as the sources of their strengths.</li> </ul>
6: Attention to and engagement with one's signature strengths provide opportunities for personal growth.	<ul style="list-style-type: none"> <li>a. Students gained awareness of signature strengths in various ways.</li> <li>b. Students experience both positive and negative aspects of being aware of their strengths.</li> <li>c. Students identify a connection between awareness of or engagement with their signature strengths and their overall well-being.</li> <li>d. Strengths are identified as being intrinsically related to resilience.</li> <li>e. Strengths were seen both as arising from encountered challenges and as being used as a means of coping with challenges.</li> </ul>

## Appendix A

### SONA Study Description/Advertisement

Study Title: Your Personal Strengths and University Experiences

You are invited to participate in a study about your personal strengths and well-being as a university student. This study will take no more than 40 minutes of your time. Anyone over the age of 18 may participate in this study, and we are particularly interested in responses from both international and domestic students.

Please note that this is a **two-part study, with data being collected in October 2022 and February 2023**. Course credit will be given for participation at each time individually, if applicable.

Please contact the Student Researcher, Jane Harder Smith, at [jharder@lakeheadu.ca](mailto:jharder@lakeheadu.ca) with any questions.

Principal Investigator: Dr. Edward Rawana ([erawana@lakeheadu.ca](mailto:erawana@lakeheadu.ca))

REB Approval #1469383

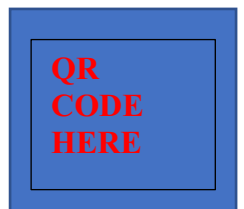
**Appendix B****Poster Advertisement****Department of Psychology****PARTICIPANTS NEEDED FOR POSITIVE PSYCHOLOGY RESEARCH!**

We are looking for **international and domestic** to take part in a study of personal strengths and well-being.

Your participation would involve completing an **online survey in the Fall 2022 and Winter 2023 terms**, which will take no more than **40 minutes at each time**. You will be asked to provide information regarding your areas of personal strength, stress, emotions, and university experiences. Your data and participation will be kept **confidential**.

You may be eligible to obtain course credit for your participation! Please visit **SONA LINK HERE** to check your eligibility/participate in the study for course credit.

To participate without course credit, go to:  
SURVEYMONKEY LINK HERE,  
scan the code to the right, or please take a tab from below!



For more information about this study, please contact:

**Jane Harder Smith**  
Department of Psychology  
[jharder@lakeheadu.ca](mailto:jharder@lakeheadu.ca)

OR

**Dr. Edward Rawana**  
Department of Psychology  
[erawana@lakeheadu.ca](mailto:erawana@lakeheadu.ca)

**There are no known risks to participation. Accessible mental health resources will be made available to you should you experience any discomfort as a result of your participation.**

**This study has been reviewed and approved by the Lakehead University Research Ethics Board (Tel: 807-343-8283, [research@lakeheadu.ca](mailto:research@lakeheadu.ca))**



## Appendix C

### Participant Demographics

Please provide the following information:

1. Age:
2. Program/year in university:
3. \*Please provide your Lakehead University email address so that we may contact you in February 2023 for a follow-up study:  
^Please provide your Lakehead University email address so that we may link your responses in the current survey with those you provided in Fall 2022.
4. Enrolment status:
  - International student
    - Do you wish to be contacted for a brief interview related to this program of research?
    - Please indicate the country in which you lived before enrolling at Lakehead University: \_\_\_\_\_
  - Domestic student
    - Have you previously enrolled in a Canadian university as an international student? If yes, please indicate the country in which you lived before enrolling at a Canadian university: \_\_\_\_\_
5. What sex were you assigned at birth, meaning on your original birth certificate?
  - Male
  - Female
6. Which best describes your current gender identity?
  - Male
  - Female
  - Indigenous or other cultural gender minority (e.g. two-spirit)
  - Something else (e.g. gender fluid, non-binary)
7. What gender do you currently live as in your day-to-day life?
  - Male
  - Female
  - Sometimes male, sometimes female
  - Something other than male or female
8. Do you consider yourself to be:
  - Heterosexual (straight)
  - Homosexual (gay or lesbian)
  - Bisexual
  - Other: \_\_\_\_\_
9. What is your cultural background? Please choose all that apply:
  - Aboriginal (e.g., First Nations, Métis, Inuit)
  - Black (e.g., African, African American, African Canadian, Caribbean)
  - East Asian (e.g., Chinese, Japanese, Korean, Polynesian)
  - South Asian (e.g., Indian, Pakistani, Sri Lankan, Bangladeshi)
  - Southeast Asian (e.g., Burmese, Cambodian, Filipino, Laotian, Malaysian, Thai, Vietnamese)

- West Asian (e.g., Arabian, Armenian, Iranian, Israeli, Lebanese, Palestinian, Syrian, Turkish)
  - Latin American (e.g., Mexican, Indigenous Central and South American)
  - White
  - Mixed origin: \_\_\_\_\_
  - Other: \_\_\_\_\_
10. Employment status, in addition to being a student:
- Working for pay
    - Full time
    - Part time
  - Caring for children or other family members
    - Full time
    - Part time
  - Unemployed
    - Looking for work
    - Not looking for work
  - Other: \_\_\_\_\_
11. How are you paying for school?
- Funding self/family assistance
  - OSAP
  - Educational authority
  - Second career/skills development
  - Other: \_\_\_\_\_
12. While attending university, where do you reside?
- Parents' home
  - Own home/apartment
  - Off-campus housing
  - On campus (residence)
13. Are you currently seeking mental health services from a psychiatrist, psychologist, or psychotherapist?
- Yes
  - No

**\*Included at Time 1 only.**

**^Included at Time 2 only.**

## Appendix D

### Strengths Assessment Inventory – Post Secondary

This checklist is not a test, however, it is designed to help you think about different strengths that you have in your life. There are no right or wrong answers.

You should answer all questions based on the **last 6 months** (for example, if you had a job 4 months ago, but do not now, you should still answer the questions in the “Job” section, based on the job that you had 4 months ago).

Answer each question for yourself. Be as honest as you can and try to answer all questions. Mark your answer in the column that describes you best.

Answer all the questions that apply to you. If the question does not apply to you, then mark the “Does not apply” option. For instance, if the question says “I take care of my pet,” and you do not have a pet, mark the “Does not apply” option.

If you want to say more about a question, write at the bottom of the page where it says, “Comments”.

	<b>Strengths with Family</b>	Not at all	Some-times	Almost always	Does not apply
1	I show that I care about other people in my family.				
2	I actively participate in activities with my family.				
3	I can talk to someone in my family when I need to talk to someone. I trust them.				
4	I get along with my siblings.				
5	I get along with others in my family.				
6	I feel badly if I do things that upset people in my family.				
7	I follow the rules where I live.				
8	I take responsibility for my behaviours.				
9	I treat my family members with respect.				
10	I assist with household maintenance.				
11	I am open and honest with my parents or guardian.				

The one person I trust the most in my family is:

Your comments:

	<b>Strengths at School</b>	Not at all	Some-times	Almost always	Does not apply
12	I arrive on time for class.				
13	I study for tests.				

14	I take notes in class.				
15	I use my listening skills in class.				
16	I participate constructively in class discussions.				
17	I pay attention in class.				
18	I work independently.				
19	I do my homework.				
20	I finish my assignments on time.				
21	I get along well with school staff.				
22	I am involved in college/university clubs or varsity sports.				
23	I am involved in other activities at school (associations, activities).				
24	I attend my classes.				
25	When I am bored with studying, I find a way to continue anyway.				

Your comments:

	<b>Strengths During Your Free Time</b>	Not at all	Some-times	Almost always	Does not apply
26	I like to watch sports on TV or live.				
27	I have a favourite team.				
28	I watch educational programs.				
29	I am physically active.				
30	I enjoy listening to music.				
31	I play an instrument.				
32	I enjoy reading.				
33	I enjoy journaling.				
34	I enjoy playing computer games.				
35	I am artistic.				
36	When I am bored, I can think of positive activities.				
37	I enjoy baking/cooking.				
38	I enjoy board games or cards.				
39	I enjoy trying new things.				
40	I enjoy outdoor activities				
41	I spend time on hobbies.				
42	I enjoy crafts such as jewellery making, scrapbooking, woodworking, etc.				

Your comments:

	<b>Strengths with Friends</b>	Not at all	Some-times	Almost always	Does not apply
43	I have healthy positive friends.				

44	If one of my friends is struggling, I support them.				
45	I am honest with my friends.				
46	I can be the leader with my friends when deciding what to do.				
47	I make positive choices when with my friends.				
48	I am a problem solver for my friends.				
49	I have a best friend.				

Your comments:

	<b>Strengths from Self-Knowledge</b>	Not at all	Some-times	Almost always	Does not apply
50	I have a sense of humor.				
51	I enjoy learning new things.				
52	I feel hopeful about life.				
53	I can control my anger.				
54	I know my strengths.				
55	I feel confident.				
56	When something does not turn out the way I hoped, I can accept it.				
57	I express my opinion even if it is different from what others think.				
58	I can accept positive and negative feedback.				
59	I try challenging activities.				
60	I know what is acceptable and not acceptable.				
61	I will ask for assistance when needed.				
62	I have problem solving skills				
63	I am creative.				
64	I have good judgment.				
65	I have positive coping strategies.				
66	I have control over my feelings.				

Your comments:

	<b>Strengths of a Healthy Lifestyle</b>	Not at all	Some-times	Almost always	Does not apply
67	I participate in healthy activities.				
68	I care about my personal hygiene.				
69	I take care of my appearance.				
70	I eat healthy.				
71	I get the appropriate amount of sleep.				
72	I keep my living space clean.				
73	My home is organized.				
74	My clothing is neat and clean.				
75	I take my medications appropriately				

Your comments:

	<b>Strengths from Being Involved</b>	Not at all	Some-times	Almost always	Does not apply
76	I participate in the activities of a club or association.				
77	I participate in community activities.				
78	I respect community property.				
79	I volunteer.				
80	I make an effort to be a part of a community.				
81	I like to share my ideas with other people in the community.				

Your comments:

	<b>Strengths from Your Faith and Culture</b>	Not at all	Some-times	Almost always	Does not apply
82	I pray or go to worship with or without others.				
83	I respect teachers, or community leaders/elders.				
84	I feel that my spirit is close to nature.				
85	I believe in something bigger than myself.				
86	I feel I am part of a culture that is special.				
87	I try to honour my culture.				
88	I attend cultural events in my community.				
89	I take an interest in learning more about my culture and other people's cultures.				
90	I am proud of who I am and where my family or people came from.				
91	I respect others for who they are and where their people or family came from.				

Your comments:

	<b>Strengths Your Goals and Dreams</b>	Not at all	Some-times	Almost always	Does not apply
94	I want very much to achieve my goals and dreams.				
95	I work hard in school to have a certain grade level.				
96	I have aspirations (for career, family).				
97	I know my life will change as I get older.				
98	I know how to set goals that are reachable.				
99	I work hard to achieve my goals.				

Your comments:

	<b>Strengths on the Job</b>	Not at all	Some-times	Almost always	Does not apply
100	I use my money wisely.				
101	I do things that will help prepare me for employment (resumes, first aid); I contact people who may hire me and apply for jobs				
102	When I am working I arrive on time.				
103	When I am working I show up for my shift.				
104	I work hard on the job.				
105	I work well with others at work.				

Your comments:

106. Do you currently have a partner?      YES                  NO

If you answered yes, please answer the following:

	<b>Strengths with Relationships/Significant Others</b>	Not at all	Some-times	Almost always	Does not apply
107	How often do you and your partner do positive things together?				
108	I am open and honest with my partner.				
109	I work at having healthy relationships.				
110	I make the right choices about sexual behaviour.				
111	I go to my partner for assistance when I need it.				
112	I trust my partner with important information.				
113	I work on correcting issues in the relationship when needed.				
114	We plan fun/positive activities together.				
115	I treat my partner as my equal.				
116	I assist my partner to develop their strengths.				

Your comments:

	<b>Strengths in Coping While Attending College/University</b>	Not at all	Some-times	Almost always	Does not apply
117	When I become nervous/anxious at school I know how to relax.				
118	When I am overwhelmed with school or work, I am still able to manage.				
119	When I am discouraged in class, I know who to talk to or what to do.				
120	If I feel lonely I know who to turn to.				
121	If I become financially strained, I know where to go for assistance.				

122	If I have a problem that is troubling me, I know where to seek assistance				
123	If I drink alcohol, I drink responsibly.				
124	If friends pressure me to participate in excessive substance use, I am able to resist.				

Your comments:

	<b>Strengths in Time Management/Planning</b>	Not at all	Some-times	Almost always	Does not apply
125	When pressured with all my assignments due, I get them completed on time.				
126	I make time for studying and completing assignments.				
127	I can fit work and school into my days.				
128	I make plans for my family life (or home life) and school work to be manageable.				
129	My relationship(s) are not affected by my studying.				

Your comments:

	<b>Strengths in Engaging with Others</b>	Not at all	Some-times	Almost always	Does not apply
130	If I need to ask the teacher something about class I will.				
131	I contribute actively in group assignments to class.				
132	If I need assistance with issues outside the classroom, I can speak to other staff.				
133	I attend college/university activities, even if I am by myself.				
134	I speak with others, with no hesitation.				

Your comments:

135. Are you a parent?                      YES                      NO  
 If you answered YES, please answer the following:

	<b>Strengths from Parenting</b>	Not at all	Some-times	Almost always	Does not apply
136	I create a balance between school and parenting.				
137	When I am with my child/children, I make the effort to supervise them well.				
138	I try to make sure that my child's/children's needs are met.				

139	I work with my partner in parenting my/our child/children.				
140	Despite my academic workload, I continue to attend my child's/children's activities.				
141	I can financially support my child's/children's extracurricular activities.				
142	Even though I have a busy lifestyle, I make an effort to spend time with my children.				

Your comments:

**Appendix E****Strengths Use Scale** (van Zyl et al., 2021)

Consider the strengths that you were asked about in the previous section. Please indicate how much you agree with each of the following statements on a scale of 1 (“Strongly disagree”) to 7 (“Strongly agree”).

	1 = strongly disagree	2	3	4	5	6	7 = strongly agree
1. I am regularly able to do what I do best.							
2. I always play to my strengths.							
3. I always try to use my strengths.							
4. I achieve what I want by using my strengths.							
5. I use my strengths every day.							
6. I use my strengths to get what I want out of life.							
7. My work gives me lots of opportunities to use my strengths.							
8. My life presents me with lots of different ways to use my strengths.							
9. Using my strengths comes naturally to me.							
10. I find it easy to use my strengths in the things I do.							
11. I am able to use my strengths in lots of different situations.							
12. Most of my time is spent doing the things that I am good at doing.							
13. Using my strengths is something I am familiar with.							
14. I am able to use my strengths in lots of different ways.							

### Appendix F

#### Psychosocial Inventory of Ego Strengths – Short Version (Markstrom et al., 1997)

Below are a series of statements. Please indicate how well each statement describes you, on a scale of 1 (“does not describe me well”) to 5 (“Describes me very well”).

	1 = does not describe me well	2	3	4	5 = describes me very well
1. I find I can easily be distracted even when I really need to finish a task. <sup>2*</sup>					
2. I feel okay with the way I've handled my life so far. <sup>8</sup>					
3. I have experienced feelings of love for someone outside my family. <sup>6</sup>					
4. When I see someone with a need, I help in whatever way I am able. <sup>7</sup>					
5. I really don't know what strengths or skills I have to offer society. <sup>4*</sup>					
6. I am involved in a variety of activities that allow me to use my skills and abilities. <sup>4</sup>					
7. I don't think I have really loved anyone outside of my family. <sup>6*</sup>					
8. When things don't go my way, I remind myself of the positive things in my life. <sup>1</sup>					
9. I really don't know what I want out of life. <sup>3*</sup>					
10. When I know someone is having a difficult time, I really feel concerned about them. <sup>7</sup>					
11. When I make a commitment to something, I stick with it. <sup>5</sup>					
12. In many ways, I have control over my future. <sup>2</sup>					
13. I don't pretend to be something I'm not. <sup>5</sup>					
14. I am afraid of what might happen to me in the future. <sup>8*</sup>					
15. I feel like I have control over my life. <sup>2</sup>					
16. When I think of my future, I see a definite direction for my life. <sup>3</sup>					

17. Even when I have an opportunity to do things I might be good at, I usually can't get started. <sup>4*</sup>					
18. Beyond my closest friends and family, I'm not that concerned about the needs of other people. <sup>7*</sup>					
19. I have strengths that enable me to be effective in certain situations. <sup>4</sup>					
20. When I am in a close relationship with someone, I tend to lose sight of my interests and goals. <sup>6*</sup>					
21. No matter how bad things get, I am confident they will get better. <sup>1</sup>					
22. Fear keeps me from striving for many of my goals. <sup>3*</sup>					
23. I'm not really sure what I believe in. <sup>5*</sup>					
24. When I feel really down, I have a hard time believing that things are going to get better. <sup>1*</sup>					
25. When I reflect on the past, I feel sadness and regret. <sup>8*</sup>					
26. I have trouble accepting a particular role or purpose in life. <sup>5*</sup>					
27. I'm not afraid of what the future has in store for me. <sup>8</sup>					
28. I don't have time to deal with other people's problems. <sup>7*</sup>					
29. When something doesn't work out the way I had hoped, it makes me feel like just quitting everything. <sup>1*</sup>					
30. My friends and I believe we can disagree on things and still be friends. <sup>6</sup>					
31. Even though I'm sometimes afraid of failing, if there something I want to do I try to do it. <sup>3</sup>					
32. I'm usually able to resist when I'm tempted to do something that's not in my best interest. <sup>2</sup>					

Notes. Items corresponding to each subscale are indicated in superscript as follows: 1. Hope; 2. Will; 3. Purpose; 4. Competence; 5. Fidelity; 6. Love; 7. Care; 8. Wisdom.

\* = reverse-scored item.

## Appendix G

### Well-Being Scale (Lui & Fernando, 2018)

Below are 29 statements about your **current status**. Please rate each of them from 1 (*strongly disagree*) to 6 (*strongly agree*).

Strongly disagree	Moderately disagree	Mildly disagree	Mildly Agree	Moderately agree	Strongly agree
1	2	3	4	5	6

1. I am physically healthy.
2. I have enough financial resources to meet my needs.
3. I have enough financial resources to have fun.
4. I am satisfied with my housing.
5. I feel in control of my finances.
6. I feel in control over my physical health.
7. I am satisfied with my weight.
8. I have enough energy to do the things I need to do
9. I take good care of my physical health.
10. I plan for the future.
11. I have someone who knows me well to talk to when I have problems.
12. I know I can count on my friends and/or family in a time of crisis
13. There is at least one person I know who loves me and/or needs me.
14. I feel confident that I am able to solve most problems I face.
15. I like my life at home.
16. I am satisfied with my physical appearance.
17. I get along with people in general.
18. I enjoy spending time with friends and/or relatives.
19. I find time to do things that are fun and interesting.
20. I believe I have the potential to reach my goals.
21. I believe that I can make a difference in the lives of others.
22. Life has meaning for me.
23. I am satisfied with my spirituality.
24. I think I am as smart as, or smarter than, others.
25. I often do things that bring out my creative side.
26. I like engaging in stimulating conversations.
27. I try to do things that make me happy.
28. I feel happy often.
29. I enjoy life

**Appendix H**

**Resilience Scale for Adults (Friborg et al., 2005)**

*Personal strength/Perception of self*

When something unforeseen happens	I always find a solution	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	I often feel bewildered
My personal problems	are unsolvable	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	I know how to solve
My abilities	I strongly believe in	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	I am uncertain about
My judgements and decisions	I often doubt	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	I trust completely
In difficult periods I have a tendency to	view everything gloomy	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	find something good that help me thrive
Events in my life that I cannot influence	I manage to come to terms with	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	are a constant source of worry/concern

*Personal strength/Perception of future*

My plans for the future are	difficult to accomplish	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	possible to accomplish
My future goals	I know how to accomplish	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	I am unsure how to accomplish
I feel that my future looks	very promising	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	uncertain
My goals for the future are	unclear	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	well thought through

*Structured style*

I am at my best when I	have a clear goal to strive for	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	can take one day at a time
When I start on new things/projects	I rarely plan ahead, just get on with it	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	I prefer to have a thorough plan
I am good at	organizing my time	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	wasting my time
Rules and regular routines	are absent in my everyday life	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	simplify my everyday life

*Social competence*

I enjoy being	together with other people	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	by myself
To be flexible in social settings	is not important to me	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	is really important to me
New friendships are something	I make easily	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	I have difficulty making
Meeting new people is	difficult for me	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	something I am good at
When I am with others	I easily laugh	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	I seldom laugh
For me, thinking of good topics for conversation is	difficult	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	easy

*Family cohesion*

My family's understanding of what is important in life is	quite different than mine	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	very similar to mine
I feel	very happy with my family	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	very unhappy with my family
My family is characterized by	disconnection	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	healthy coherence
In difficult periods my family	keeps a positive outlook on the future	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Views the future as gloomy
Facing other people, our family acts	unsupportive of one another	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	loyal towards one another
In my family we like to	do things on our own	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	do things together

*Social resources*

I can discuss personal issues with	no one	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	friends/family-members
Those who are good at encouraging me are	some close friends/family members	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	nowhere
The bonds among my friends is	weak	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	strong
When a family member experiences a crisis/emergency	I am informed right away	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	it takes quite a while before I am told
I get support from	friends/family members	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	No one
When needed, I have	no one who can help me	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	always someone who can help me
My close friends/family members	appreciate my qualities	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	dislike my qualities

## Appendix I

### Perceived Stress Scale (Cohen et al., 1983)

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, don't try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate.

In the <b>past month</b> , how often have you...	Never	Almost never	Some- times	Fairly often	Very often
1. been upset because of something that happened unexpectedly?					
2. felt that you were unable to control the important things in your life?					
3. felt nervous and "stressed"?					
4. dealt successfully with life's hassles?*					
5. felt that you were effectively coping with important changes that were occurring in your life?*					
6. felt confident about your ability to handle your personal problems?*					
7. felt that things were going your way?*					
8. found that you could not cope with all the things you had to do?					
9. been able to control irritations in your life?					
10. felt that you were on top of things?*					
11. been angered because of things that happened that were outside of your control?					
12. found yourself thinking about things that you have to accomplish?					
13. been able to control the way you spend your time?*					
14. felt difficulties were piling up so high that you could not overcome them?					

Notes. \* = reverse-scored item.

## Appendix J

### College Adjustment Questionnaire (O'Donnell et al., 2018)

Listed below are some statements that describe how university students might be feeling about their experience with university. Please use the rating scale below to indicate how accurately each statement describes you **at this point in time**.

Very inaccurate	Moderately inaccurate	Neither accurate nor inaccurate	Moderately accurate	Very accurate
1	2	3	4	5

1. I am succeeding academically.
2. I don't have as much of a social life as I would like.\*
3. I feel that I am doing well emotionally since coming to university.
4. I am happy with my social life at university.
5. I am doing well in my classes.
6. I am happy with how things have been going in university.
7. I am happy with the grades I am earning in my classes.
8. I feel that I am emotionally falling apart in university.\*
9. I have had a hard time making friends since coming to university.\*
10. I am meeting my academic goals.
11. I am as socially engaged as I would like to be.
12. I have felt the need to seek emotional counselling since coming to university.\*
13. I have performed poorly in my classes since starting university.\*
14. I am satisfied with my social relationships.

\* = reverse-scored items

## Appendix K

### The Development of Strengths Interview Protocol (Owens et al., 2018): Selected Questions

1. When is the first time you can remember using \_\_\_\_\_ (signature strength)?
2. How did you acquire \_\_\_\_\_ (signature strength)?
  - Did someone teach it to you?
  - Did you observe it?
  - Was it always present?
3. How did \_\_\_\_\_ (signature strength) develop over your life?
  - Was that strength during your adolescence similar or different to when you were a child?
  - Is that strength during your adulthood similar or different to when you were an adolescent?
  - Have your strengths changed since you began university as an international student?
4. Have your strengths changed over time?
5. Would you say your strengths have gotten stronger, weaker, or stayed the same over time?

## Appendix L

### Letter of Information and Consent Form – Online Survey



Faculty of Health and Behavioural Sciences  
Department of Psychology

#### **Your Personal Strengths and University Experiences**

**Student Researcher: Jane Harder Smith, MA – [jharder@lakeheadu.ca](mailto:jharder@lakeheadu.ca)**  
**Supervisor/Principal Investigator: Dr. Edward Rawana, PhD, C.Psych – [erawana@lakeheadu.ca](mailto:erawana@lakeheadu.ca)**

#### *Letter of Information & Consent for Potential Participants*

Dear Potential Participant:

You are invited to take part in a research study entitled “Your Personal Strengths and University Experiences”.

Taking part in this study is voluntary. Before you decide whether or not you would like to take part in this study, please read this letter carefully to understand what is involved. After you have read the letter, please direct any questions you may have to Jane Harder Smith (student researcher, Ph.D. student at Lakehead University) at [jharder@lakeheadu.ca](mailto:jharder@lakeheadu.ca).

#### **PURPOSE**

The purpose of this research is to identify relationships between factors relating to personal areas of strength in one’s life, well-being, resilience, and adjustment to university.

#### **ELIGIBILITY**

Anyone over the age of 18 may complete this survey. We are particularly interested in collecting responses from both international and domestic students.

#### **PROCEDURES**

Your participation will require you to complete the online survey following this letter. It is anticipated that the survey will take no more than **40 minutes** to complete at each time. Following the completion of the survey, you will be directed to a final debriefing page which will provide you with some more information about the study.

Please remember that as a potential participant, you:

- are under no obligation to participate in the study. At any time before completing the study, you are free to discontinue the survey for any reason.
- may contact the student researcher at any time should you wish to have your responses withdrawn from the survey. This is possible for those participants who provide an email address, allowing for identification of their data.

- for students participating through the SONA system, course credit will still be granted to those participants who choose to discontinue the study for any reason.
- are under no obligation to answer any questions with which you are uncomfortable.
- may contact the student researcher at any time with any questions you may have regarding the study.

Responses will be collected from you at **two times: Fall 2022 and Winter 2023**. You will be asked to provide your Lakehead University email address at both times so that you may be contacted for follow-up in February 2023, and so that your responses at both times may be linked with each other.

### **CONFIDENTIALITY**

Your participation in this study will be completely **confidential**. You will be asked to provide some demographic information, as well as your Lakehead University email address so that your data can be linked between the two times you participate (Fall 2022 and Winter 2023).

Following your participation in the study, all data gathered from participants will be stored in encrypted files on a secure hard drive in the possession of the Student Researcher at Lakehead University. Data will remain completely confidential between the Student Researcher and her Supervisor. In compliance with ethical guidelines, data will be stored for a minimum of 5 years following the completion of the study.

Please note that the online survey tool used in the study, SurveyMonkey, is hosted by a server located in the USA. The US Patriot Act permits U.S. law enforcement officials, for the purpose of anti-terrorism investigation, to seek a court order that allows access to the personal records of any person without the person's knowledge. In view of this we cannot absolutely guarantee the full confidentiality and anonymity of your data. With your consent to participate in this study, you acknowledge this.

At the completion of the study, you will be asked if you wish to be contacted to complete other studies related to this program of research. Should you indicate that you wish to be contacted, you will be asked to provide your name and email address.

### **RISKS AND BENEFITS**

We do not anticipate any risks associated with participation in this study. If you experience any distress or discomfort following your participation in this study, mental health services can be accessed on campus at the Student Health and Wellness Centre (Tel: 807-343-8361) or through the Good2Talk Student Hotline (Tel: 1-866-925-5454).

Participants completing this study through the SONA system will receive a benefit in the form of credit toward an eligible undergraduate psychology course. There are no other known benefits to participation.

### **WHAT WILL MY DATA BE USED FOR:**

This research study is being undertaken as part of the student researcher's Ph.D. dissertation project. Results will also be used for publication in scientific journals and presentation at academic conferences. Should you wish to inquire as to the results of the study, you may contact the Student Researcher.

### **RESEARCH ETHICS BOARD REVIEW AND APPROVAL:**

This research study has been reviewed and approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team, please contact Sue Wright at the Research Ethics Board at [807-343-8283](tel:807-343-8283) or [research@lakeheadu.ca](mailto:research@lakeheadu.ca).

#### **DECLARATION OF FUNDING**

This study has been funded by an Ontario Graduate Scholarship held by the Student Researcher.

#### **MY CONSENT:**

I agree to the following:

- ✓ I have read and understand the information contained in the Information Letter
- ✓ I agree to participate
- ✓ I understand the risks and benefits to the study
- ✓ That I am a volunteer and can discontinue the study at any time, and may choose not to answer any question
- ✓ I acknowledge that if I do not provide an email address at which I may be contacted, I cannot withdraw my data due to the anonymous nature of the data
- ✓ My responses will remain confidential if I provide an email address, and anonymous if I do not provide an email address
- ✓ That the data will be securely stored at Lakehead University for a minimum period of 5 years following completion of the research project
- ✓ I understand that the research findings will be made available to me upon request
- ✓ All of my questions have been answered

By consenting to participate, I have not waived any rights to legal recourse in the event of research-related harm.

*I have read and agree to the above information and consent to proceed to the online survey  
[INSERT LINK]*

## Appendix M

### Debriefing Page – Online Survey



Faculty of Health and Behavioural Sciences  
Department of Psychology

Thank you for participating in the study, “Your Personal Strengths and University Experiences”! The purpose of this study is to identify relationships between factors relating to personal areas of strength in one’s life, well-being, resilience, and adjustment to university. We are particularly interested in how these relationships may differ between domestic and international students. With this study, we aim to apply a strengths framework to international student life and provide a research basis for implementing strengths-based advising and mental health services for both international and domestic students.

\*You will be contacted again in **February 2023** for participation in Part 2 of this study.\*

Should you have any questions regarding the study or its final results, please feel free to contact the research team.

Student Researcher: Jane Harder Smith, MA (Ph.D. student, Lakehead University)

Supervisor/Principal Investigator: Dr. Edward Rawana, Ph.D., C.Psych

If you experience any distress or discomfort following your participation in this study, mental health services can be accessed on campus at the Student Health and Wellness Centre (Tel: 807-343-8361) or through the Good2Talk Student Hotline (Tel: 1-866-925-5454)

\*-\* indicates information included in Time 1’s debriefing page only.

## Appendix N

### Time 2 Recruitment Email

Greetings,

You are being contacted regarding your participation in the study, “Your Personal Strengths and University Experiences.” You may recall that you participated in Part 1 of this study in Fall 2022. We are requesting your participation once again for collection of further data.

If you are interested in participating in Part 2 of this study, please visit one of the links listed here:

- If you are eligible for Psychology course credit through participation in a psychological studies through the university’s SONA system, please click [here](#).
- If you are not eligible for Psychology course credit this term, please click [here](#) to access the survey directly.

Any questions regarding this study can be directed to Jane Harder Smith, student researcher. Please reply to this message, or send an email to [jharder@lakeheadu.ca](mailto:jharder@lakeheadu.ca).

Thank you for your time.

Jane Harder Smith, MA, student researcher

## Appendix O

### Letter of Information and Consent Form – Qualitative Interview



Faculty of Health and Behavioural Sciences  
Department of Psychology

**International Student Strengths and University Experiences**  
**Student Researcher: Jane Harder Smith, MA – [jharder@lakeheadu.ca](mailto:jharder@lakeheadu.ca)**  
**Supervisor/Principal Investigator: Dr. Edward Rawana, PhD, C.Psych – [erawana@lakeheadu.ca](mailto:erawana@lakeheadu.ca)**

#### *Letter of Information & Consent for Potential Participants*

Dear Potential Participant:

You are invited to take part in a research study entitled “International Student Strengths and University Experiences”.

Taking part in this study is voluntary. Before you decide whether or not you would like to take part in this study, please read this letter carefully to understand what is involved. After you have read the letter, please direct any questions you may have to Jane Harder Smith (Student Researcher, Ph.D. student at Lakehead University) at [jharder@lakeheadu.ca](mailto:jharder@lakeheadu.ca).

#### **PURPOSE**

The purpose of this research is to identify relationships between factors relating to personal areas of strength in one’s life, well-being, resilience, and adjustment to university for international students.

#### **ELIGIBILITY**

Any international student over the age of 18 may participate.

#### **PROCEDURES**

Your participation will require you to take part in an interview with the Student Researcher. It is anticipated that the interview will take no more than **60 minutes** to complete. Following the completion of the interview, you will be provided with a debriefing letter which will provide you with some more information about the study.

Please remember that as a potential participant, you:

- are under no obligation to participate in the study. At any time before completing the study, you are free to discontinue the interview for any reason.
- are under no obligation to answer any questions with which you are uncomfortable.
- may contact the student researcher at any time with any questions you may have regarding the study.

#### **CONFIDENTIALITY**

Your participation in this study will be completely **confidential**. Though you will be asked to provide your name for the purposes of scheduling an interview, neither your name nor any other identifying information will be linked to the responses you provide. With your permission, the interview will be audio recorded to facilitate collection of information, and later transcribed for analysis. Your identity will be confidential. Your name will not appear in any thesis or report resulting from this study, however, with your permission anonymous quotations may be used. Following your participation in the study, all data gathered from participants will be stored in encrypted files on a secure hard drive in the possession of the Student Researcher at Lakehead University. Data will remain completely confidential between the student researcher and her supervisor. In compliance with ethical guidelines, data will be stored for a minimum of 5 years following the completion of the study.

### **RISKS AND BENEFITS**

Due to the COVID-19 pandemic, in-person research carries greater or additional risk. To minimize this risk, additional precautionary measures will be taken. The researcher will wear a medical mask during the course of the interview, and surfaces will be sanitized prior to and following your interview. Hand sanitizer will also be available for your use during the interview.

We do not anticipate any other risks associated with participation in this study. If you experience any distress or discomfort following your participation in this study, mental health services can be accessed on campus at the Student Health and Wellness Centre (Tel: 807-343-8361) or through the Good2Talk Student Hotline (Tel: 1-866-925-5454).

Participants completing this study will receive a benefit in the form of a \$15 honorarium. There are no other known benefits to participation.

### **WHAT WILL MY DATA BE USED FOR:**

This research study is being undertaken as part of the Student Researcher's Ph.D. dissertation project. Results will also be used for publication in scientific journals and presentation at academic conferences. Should you wish to inquire as to the results of the study, you may contact the Student Researcher.

### **RESEARCH ETHICS BOARD REVIEW AND APPROVAL:**

This research study has been reviewed and approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team, please contact Sue Wright at the Research Ethics Board at [807-343-8283](tel:807-343-8283) or [research@lakeheadu.ca](mailto:research@lakeheadu.ca).

**DECLARATION OF FUNDING**

This study has been funded by an Ontario Graduate Scholarship held by the Student Researcher.

**MY CONSENT:**

I agree to the following:

- ✓ I have read and understand the information contained in the Information Letter
- ✓ I agree to participate
- ✓ I understand the risks and benefits to the study. I understand that there are risks of contracting COVID-19 during in-person research.
- ✓ That I am a volunteer and can discontinue the study at any time, and may choose not to answer any question
- ✓ I understand that my responses will remain confidential
- ✓ I agree to have my responses audio recorded and transcribed
- ✓ I agree to have quotations from my interview anonymously reported in the final research report and other related publications
- ✓ That the data will be securely stored at Lakehead University for a minimum period of 5 years following completion of the research project
- ✓ I understand that the research findings will be made available to me upon request
- ✓ All of my questions have been answered

By consenting to participate, I have not waived any rights to legal recourse in the event of research-related harm.

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Participant Signature

## Appendix P

### Debriefing Page



Faculty of Health and Behavioural Sciences  
Department of Psychology

Thank you for participating in the study, “International Student Strengths and University Experiences”! The purpose of this study is to identify relationships between factors relating to personal areas of strength in one’s life, well-being, resilience, and adjustment to university. We are particularly interested in how these relationships may differ between domestic and international students. With this study, we aim to apply a strengths framework to international student life and provide a research basis for implementing strengths-based advising and mental health services for both international and domestic students.

Should you have any questions regarding the study or its final results, please feel free to contact the research team.

Student Researcher: Jane Harder Smith, MA (Ph.D. student, Lakehead University)

Supervisor/Principal Investigator: Dr. Edward Rawana, Ph.D., C.Psych

If you experience any distress or discomfort following your participation in this study, mental health services can be accessed on campus at the Student Health and Wellness Centre (Tel: 807-343-8361) or through the Good2Talk Student Hotline (Tel: 1-866-925-5454)